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JANUARY, 1947

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JANUARY, 1947
Volume XXXVI No. 1

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the MANAGEMENT REVIEW

POINTING out that the current clamor about productivity in the United States is being echoed in Great Britain and Russia, C. Hartley Grattan concludes that no change of social organization can lessen the need for hard work (see pages 9-11). British socialist leaders are fervently exhorting labor to work harder, while deprecating wage increases; nevertheless productivity lags behind American standards. (Productivity in the British shoe industry, for instance, is only half as high as in this country.) Soviet industries appear to be overmanned, and the gap between Moscow's production quotas and actual output is widening. Mr. Grattan discusses the reasons underlying the production decline here and abroad, and shows what we must do to maintain our lead. Red, socialist, or free, he says, we still must work—and any attack upon productivity is a direct attack on the well-being of every citizen, whether under capitalism, socialism, or communism.

"BLACKOUT" factories, war production demands, and the need for fine tolerances gave industrial air conditioning a real impetus during World War II. A study by *American Machinist* (pages 29-31) shows how air conditioning can improve processes and products, increase efficiency, reduce cleaning costs, and decrease absenteeism; and it weighs the possible advantages against the cost. Absenteeism declines 25 to 30 per cent, it is reported, when air conditioning is installed.

MANY large companies have long championed decentralization, and during the war the branch plant movement was accentuated. Myriad organizational problems are involved in decentralization, and these are discussed by John L. Brennan in a feature study (pages 49-58) which shows how one company controls its branch plant operations.

James O. Rice, *Editor;* M. J. Dooher, *Managing Editor;* Alice Smith, *Associate Editor;* Vivienne Marquis and Evelyn Stenson, *Assistant Editors.*

THE MANAGEMENT REVIEW is published monthly by the American Management Association at 330 West 42nd Street, New York 18, N. Y., at fifty cents per copy or five dollars per year. Vol. XXXVI, No. 1, January, 1947. Entered as second-class matter March 26, 1925, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

Changes of address should be forwarded to the publishers *one month in advance,* and postal unit numbers should be included in all addresses.

THE MANAGEMENT INDEX

General Management

How Factory Workers View Union Behavior and Industry Earnings

TO help management understand worker attitudes in the critical months ahead, *Factory* has just completed a new nationwide survey of industrial workers' views on union leadership, union behavior, and industry's wage and price policies. Interviews were allotted in proportion to geographical concentration of industry, type of industry, size of plant, age group, union affiliation, and sex. The findings, which are summarized here, may therefore be considered representative of the opinions of typical factory employees below the supervisory level.

Many workers believe some national union leaders have hurt unions by demanding too much or calling strikes. Only 16 per cent of those interviewed were of another opinion; another 16 per cent were undecided.

Asked which union leader has hurt unions most this way, 60 per cent of those who thought some leaders had hurt unions named John L. Lewis; 5 per cent, James C. Petrillo; 4 per cent, A. F. Whitney; 3 per cent each, William Green, Walter Reuther, and Philip Murray; 2 per cent, Harry Bridges; 6 per cent named other union leaders, and the remaining 14 per cent didn't know.

While workers rated Lewis the leader who has done most to hurt unions in public opinion, they also consider him the leader who is doing the most to help workers get better wages, hours, and working conditions. Lewis ranked first with 17 per cent; 10 per cent named Philip Murray; 9 per cent, William Green; 3 per cent, Walter Reuther; 1 per cent, Harry Bridges; 1 per cent, James C. Petrillo; 6 per cent named others, and 53 per cent didn't know.

Some workers see Communist influence in unions. Asked whether Communists have much, moderate, or little or no influence in unions, 22 per cent answered, "much," 17 per cent, "moderate," 31 per cent, "little or no." The remaining 30 per cent advanced no opinion.

Most workers disapprove of secondary boycotts. While a very small number—6 per cent—of those interviewed had at some time lost work as a result of secondary boycotts, fully 55 per cent went on record as being against them; 21 per cent did not disapprove of secondary boycotts, and the remaining 24 per cent didn't know.

Workers believe that labor leaders can contribute to industrial peace by being cooperative, fair and square, and working for the rank and file. Asked what labor leaders could do to reduce

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strikes and labor disputes, 19 per cent answered, "cooperate with management." Leaders should "be fair and square" in the opinion of 13 per cent. Another 10 per cent thought union leaders could help most by working with and for the rank and file; 32 per cent furnished other answers; 26 per cent didn't know. In each group of workers a substantial percentage also advance the opinions that leaders should negotiate differences, not strike for trivial reasons, be responsible for their acts, forget politics, and make gains gradually.

Workers believe management can help reduce strikes by bringing wages into line with living costs. Fully 23 per cent considered this management's first responsibility, if it is to do its part in reducing strikes. An equal percentage thought management must cooperate with labor; 11 per cent thought it must get closer to workers; 27 per cent advanced other ideas; 16 per cent had no opinion. It is of interest to note that the same question was asked of factory workers in a similar survey last year. "Pay higher wages," rather than "bring wages into line with living costs," was how they phrased their answers then. Other than that, responses to this question were about the same.

Most workers believe that their companies charge the right prices, pay fair wages as a rule, and pay their bosses fair salaries. Asked whether they thought owners or stockholders were getting too much, too little, or about the right amount of money, only 49 per cent could advance an opinion. Of these, however, 25 per cent thought owners were getting too much; 2 per cent thought they were not getting enough; 22 per cent thought they were getting about the right amount of money.

Most workers believe their own companies can afford to pay wage increases now without raising prices. Fully 76 per cent of those surveyed were of this opinion. (And of perhaps equal significance is the fact that 65 per cent believe that *all industry* can raise wages without raising prices.)

The importance of factory workers' attitudes regarding wages and prices cannot be underestimated. On the one hand, they feel that their companies are paying fair wages, as a rule, and charge about the right prices. Nevertheless, three out of four think that wages can be raised without price increases. This seems to be the key blind spot in the worker's understanding of the economic facts about his job. Taken with the fact that 36 per cent had no opinion about executives' salaries in their companies and 51 per cent did not know whether owners were receiving a fair amount, it reveals the opportunity management has to win better understanding of workers by educating them in basic economics.

Despite their feeling that dividends to owners may be too high, workers want 5 or 10 per cent on the money they invest. They were asked the following question: "If you put $5,000 into a company, about what per cent return would you expect each year?" More than three-quarters of the workers surveyed had definite ideas about this question, the expected returns ranging from 2 per cent to 40 per cent or more. Most workers, however, indicate that they would expect from 5 to 10 per cent on their investments.

Put together, the survey results clearly show how management's failure to provide workers with economic education leaves them wide open when an organizer claims they are being "exploited."

Factory Management and Maintenance, November, 1946, p. 81:8.

What the Enemies of Big Business Fail to Tell!

IT would be difficult to find any important subject on which the majority of people are so misinformed as they are on the matter of "Who owns American corporations, and how much do the owners receive in dividends?"

Over a period of years, extremists in both labor and government have tried to create the impression that ownership of big business lies largely in the hands of a wealthy minority. The records show conclusively, however, that most stocks today are in the hands of moderate-income individuals having only small stock holdings. One factor that induces many large stockholders to confine their investments to tax-exempt securities—conveniently provided by the same politicians who for years have been attacking big business—rather than stocks is the government's heavy taxing (75 to 90 per cent) of their dividends.

Whatever radical element hits big business today is actually hitting 15,000,000 small investors whose lifetime savings are at stake—people who have labored and scrimped for years to buy stocks to provide income for their old age.

To discover how surprisingly small are the so-called big profits of the nation's "bloated rich stockholders," it is necessary only to consider a few significant figures: The workers now get 71 per cent of the total national income, while stockholders get only 2 4/5 per cent. In 1929, stockholders received 7 per cent of the national income.

According to the Department of Commerce, total dividends received by stockholders in 1945 amounted to $3.8 billion. This appears a huge sum, but its distribution was not confined to a few thousand individuals; it went to the 15,000,000 stockholders whose savings made possible the plants and equipment largely responsible for our present high standard of living. In other words, the *average* stockholder received a grand total of less than $300 from all his stocks.

Of the 688,000 who own stock in the American Telephone & Telegraph Company, only 44,000 own as much as 100 shares. The remaining 644,000 stockholders own less than 100 shares each. Of the 44,000 owning 100 or more shares, many are insurance companies, investment trusts, and other fiduciaries representing large numbers of individuals.

Here are more facts well worth pondering. The cry is again being raised that union employees should have their compensation increased to meet the increased cost of living. We know union members generally have obtained wage increases amounting to more than the increase in living costs, whereas, in many instances, unorganized workers and stockholders are receiving little more than they did in 1941. This is an unhealthy situation, since those whose pay has been increased substantially more than the rise in living costs may eventually lose their jobs because of the lack of buying power on the part of the tens of millions of unorganized citizens whose total annual incomes are little more than they were in 1941.

In most large corporations, the rates of union employees' pay have been increased, since 1941, from 35 to 50 per cent, whereas, according to Department of Commerce figures, the total of dividends paid to all stockholders in 1945 was $100 million *less* than the amount paid in 1941. Stockholders also have to meet increases in living expenses, and rising costs place particular hardship on the millions of widows and re-

tired couples entirely dependent upon their small dividend checks.

The best proof that business generally is not exploiting the consumer is shown by these telling figures—also from government source: The average corporation profit per dollar of sales in 1944 was only 3.9 cents. In 1945, it was 3.8 cents. Does this indicate profiteering at the expense of either the employee or the consumer?

Dividends per dollar of sales were, of course, much less than the profits per sales dollar, since most corporations pay out in dividends each year only about 70 per cent of their profits. The remainder provides reserves for expansion and contingencies.

These figures have deep significance in the face of the claim, so often made, that business men can make large wage increases, reduce prices to the consumer, and still make a good profit. This obviously is directly contrary to the facts.

It is regrettable that most corporations have utterly failed to tell their story, not only to their employees but to the public as well. In a recent poll of railroad employees, the men were asked to state the percentage of return on investment that, in their opinion, the railroads were earning. The average answer was 27 per cent. Contrast this with the actual return of 3 per cent earned by the railroads, on their invested capital, in 1945.

Employees cannot be blamed for having an exaggerated idea of the earnings of the corporations employing them. The fault lies with the managements who fail to educate their employees on such matters as the percentage of earnings on capital invested, and the portion of each dollar of sales that goes for labor, for management, to stockholders, taxes, expansion, and reserves.

Most union employees are loyal American citizens who are simply looking for a square deal and will not make unreasonable demands if they know enough of a corporation's financial affairs to realize what is a fair request on labor's part and what is an extortionate demand. There is, however, a powerful minority of union men whose unreasonable demands are inspired solely by a desire to wreck our whole economic and political system rather than to better the condition of the workers.

A long period of prosperity is within reach of the people of this country if labor, management, and stockholder will try to get the viewpoint of one another and work together for the common good. By mutual antagonisms they simply prevent economical production of goods, with the result that the standards of living of everyone concerned is greatly reduced and no one gains except the agitators—who make a rich living by being agitators.

Business executives should realize their responsibility to tell fully the story of corporate ownership, business profits relative to sales and payrolls, total number of stockholders, their approximate holdings, dividends per average stockholder, and similar vital facts, so that misstatements on these subjects will no longer be believed by the public or by employees. Every corporation executive should join the crusade to save American prosperity and freedom—with hard-hitting facts and then more facts.

The best antidote for misrepresentation is the truth. Let's smoke out the agitators with the searching light of publicity on corporation affairs and with figures and language that everybody can understand.

By Henry L. Vonderlieth. *Financial World,* December 18, 1946, p. 3:3.

Significant Factors in Plant Location

PLANT location is often the result of a compromise between conflicting social, economic, and governmental interests and geographic considerations. Personal desires of the owners or managers, frequently influenced by social considerations, may suggest one location when economic considerations would indicate another. Governmental factors are not so important in many instances, but they assume greater importance when the company desires to engage in foreign trade or during wartime.

In a particular region, plant location is influenced largely by: (a) proximity to desired market—a factor affected by the time element in giving prompt service, technical advice, and in ability to adjust to the trends in the given area; (b) local and regional tax situation; (c) nearness to source of raw material; (d) labor supply; (e) transportation facilities; (f) climatic conditions; (g) governmental factors; (h) availability of water, power, and fuel.

Nearness to source of raw materials is of special importance when the raw material is bulky in relation to the value and when volume and weight are greatly reduced during processing. If the volume of the raw material is small in comparison to that of the finished product, the plant will usually locate near the market instead of near the raw material supply. Raw materials rendered less perishable by manufacturing are usually processed near their source.

Transportation facilities and costs may dictate one location when other factors strongly favor another. The fact that water transportation is usually less costly than rail or truck transportation has made location on navigable waters common practice for industries with large volumes of freight. Location near adequate rail, water, and truck transportation is preferred for manufacture of a product for a large market. Transportation rates greatly influence the size of a given market that can be economically served by an individual plant. Plants tend to be located where aggregate transportation costs are least.

Governmental factors are important from a regulatory and licensing standpoint. Taxes must also be considered. Many industries manufacturing for export have established branch plants in Canada and Australia to gain the advantage of a favorable tariff in the United Kingdom.

Exact location within a given region is governed by: (a) availability of land to meet current requirements and future expansion needs as well as the relative cost of this land in comparison with other cost factors; (b) nearness of other industries upon which the given plant may be dependent; (c) transportation facilities for raw materials, finished products, and employees; (d) availability and characteristics of labor supply; (e) importance of local market; (f) community restrictions and, in some cases, aids.

Local transportation for raw materials may be handled by truck if the volume be relatively small, yet even in such cases rail and water transportation is often advantageous. Transportation facilities for employees or nearness to their homes may be reflected in labor expense as well as in the character of the labor available. Many employees use their own cars, but this requires parking space—often prohibitive in high-priced land areas.

Community restrictions such as requirements for disposition of wastes, smoke regulations, and zoning restrictions are often controlling. A location

deemed desirable for a plant may be reserved for residential purposes. It is usually unwise for an industry to try to break down community regulations even though it proceed through regular channels.

Big-city location. Advantages here may be said to be:

1. Adequate labor supply.
2. Presence of subsidiary, service, and related industries.
3. Facility in financing of enterprise.
4. Large local market—particularly important to small plant.
5. Social and educational opportunities for employees and executives.
6. Trunk line rail and water transportation usually available.

Against these may be weighed the disadvantages:

1. High taxes; high labor costs.
2. Labor relations less friendly, at times, than in small communities.
3. Scarcity of sites that provide room for expansion, and expensiveness of land.

Small-town location. Here, advantages are:

1. Availability of sites that provide room for expansion.
2. Many small towns give free land or erect buildings and give bonuses to industries to locate within their borders (though such factors should not be over-emphasized, since more basic conditions may not be advantageous).
3. Undesirable manufacturing neighbors not likely to be present.
4. Low taxes.
5. Municipal regulations seldom burdensome.
6. Favorable labor-management relations in early stages of plant development which continue when management follows an enlightened labor policy.
7. Absence of alternative opportunity makes labor more desirous of learning technique of a given industry.

The disadvantages:

1. Lack of diversified labor supply as well as of many of the other big-city advantages.
2. Trained labor usually not available.

Suburban location. Provides practically all the advantages of both the large city and the small town with relatively few of their disadvantages. There is adequate land for the one-story structure. The ground is relatively cheap and taxes comparatively low. Advantages of the nearby city are to be had usually sufficiently often by the staff to keep them contented, particularly if suburban housing conditions are as good as, or better than, city ones. Railroad facilities are likely to be better than in the city in that spur tracks are easier to secure and can be arranged to suit the needs of the plant.

Specialized community. Management problems are simplified in various ways by location near other similar industries. Among the advantages are:

1. Trained labor supply.
2. Banks are familiar with needs of the business and with good business practice in the industry.
3. Buyers gravitate to localities where an industry is centered.
4. Proximity of manufacturers of the type of equipment used in the industry.

Disadvantages of highly specialized areas are:

1. Unionization of labor within the industry facilitated.
2. Purchasing agents "shop around" in times of depression, thus the fact that they come to the market to buy is not an unmixed blessing to the manufacturer.

Location advantages of large city, small town, and suburb. A plant may locate in a specialized section and still have a choice of a large city, small town, or suburb of a large city. If the specialized area be a large city, many of the advantages of location within that city can be gained by location nearby, while some of its disadvantages may be avoided. Thus the automotive plants of Pontiac, Flint, and Jackson, Michigan, have most of the advantages of those in Detroit but are not faced with the transportation problems or taxes incident to location within Detroit.

Taxes have played a major role in locating new plants that are branches of larger parent organizations. Pontiac and other "satellite" cities owe their industrial growth largely to the high taxes of the larger cities. Time and the growth of satellite cities tend to eradicate this tax differential.

The economic survey. Industrial engineers and market analysts have developed techniques for determining fairly accurately (a) the volume of business that may reasonably be expected from a given market area, and (b) the best plant location, i.e., the location that will permit production and distribution in this area at lowest unit cost. The unit cost of production is usually the resultant of many economic forces, including: (1) incoming freight expenses; (2) cost of fuel, power, water; (3) cost of plant site; (4) building costs; (5) labor costs; (6) freight costs for distribution. With these costs and assumed volume of production, an operating statement can be constructed or a cost analysis made that will indicate from an economic standpoint certain definite preferences as to location. Most of the data required are readily obtainable from current prices and published schedules for the communities under consideration. Labor costs are usually computed on the basis of the prevailing rates in the community for common labor. Land sites can usually be ascertained locally by an actual bid or offer. The nature of the land site may determine to some extent the building costs. Labor rates, a large factor in building construction, vary considerably in different localities. Labor costs, however, should not be over-emphasized. In the final analysis, from an economic standpoint, it is the total cost relationship rather than any one item that is likely to be controlling.

Decentralization of industry. For many years, plants tended to grow, influenced partly by economies in mass production and partly by the American attitude toward "size." Building plants away from the home plant to care for needed productive capacity in a strict sense is not decentralization but rather a change in the trend from increased centralization. The transfer of production to outlying plants thereby decreasing not only relatively, but actually, the production in the central plant, constitutes decentralization. Much of the geographical shifting of production involves in reality increased production rather than a decrease in the actual production in the old plant or area. In the vicinity of the older areas and plants which may not be increasing production at the former rate, employment opportunity for the growing population diminishes. This situation naturally raises grave social, economic, and governmental problems. Manufacturing tends to follow the shift in population, and population tends to increase in manufacturing centers, thus establishing a reciprocal relationship. Both population and manufacturing centers tend to follow economic opportunities closely related to the abundance of natural resources.

Other factors that influence growth of industries in new regions are: (1) favorable labor legislation or labor relations in the new area; (2) lower labor costs; (3) proximity to source of raw materials; (4) cheap electric power (T. V. A. region); (5) lower taxes; (6) special inducements in the form of free land sites, etc. Some manufacturers believe there are long-run social and economic advantages in having industry more widely distributed than it tended to be at the beginning of the 20th century. There is little likelihood that many widely scattered, self-contained small industrial units will develop. It is more probable that the

next step in the evolution of regional plant location will be a highly integrated system of plants decentralized as to process but directed by a unified management. The location of the steel industry has to a large extent followed its market. Pittsburgh is still a large producer of steel but so also are Chicago, Detroit, Cleveland, and Birmingham.

From an address by William R. Spriegel before the Industrial Management Society of Chicago.

Red, Socialist, or Free, We Still Must Work

WERE the current failure of productivity confined to one country, it would be possible to draw a simple cause-and-effect conclusion, and point a useful political moral. But it isn't. Cries of alarm are equally loud in the capitalist United States, socialist Britain and communist Russia.

Like causes are producing like effects. The evidence all declares that no change of social organization will lessen the need for hard work; no matter what the social system, the people of a nation cannot get more out of the production basket than they put in. They can rig the distribution of what is in the basket as they wish, but they cannot increase total take without increasing total production.

Under any social system imaginable, production is the only road to better living standards all-round, and the only road to more total production is to increase the productivity of each worker. Any attack on productivity, however motivated or however managed, is a direct attack on the well-being of every citizen, whether under capitalism, socialism, or communism.

The other day I talked to a leading spokesman for American business. He recalled that in the early '30's he supervised the building of a plant in England, and got it started. It was equipped with the latest and best machinery for making the company's product and was more modern than the parent plant in this country. He installed the same basic pay rates, on a piece-work basis, as in the United States, expecting the English workers to earn American pay checks. They didn't. They were satisfied with less pay (normal English pay for comparable work) and argued that to earn more by doing more would mean they must work at an inhuman pace.

The argument was false, as American experience showed. The point is that the English workers refused to collect the fruits of higher worker productivity which the modern machines and sensible management put within their grasp. Why didn't they want them? I can suggest an argument which applies generally in England. The trade unions there built up a tremendous resistance to methods, whether managerial or mechanical, which were aimed at higher productivity per worker, even when the worker benefited, on the ground that the chief beneficiary inevitably was the capitalist. Trade-union members were to do nothing for the benefit of the capitalist. The effect of higher productivity on total national product, and of an increased product on the share paid out as wages, leading to higher living standards, was ignored. To support a theory, the trade unionists penalized the entire nation.

Not all resistance in England came from trade unions. Ownership and management also showed a marked deficiency in enterprise in this field.

But when trade-union obstruction was combined with lack of enterprise in management, the result was the England you see today. The testimony on Britain's failure to achieve the highest standards of productive efficiency is mountainous and continues to pile up.

According to a Working Party report on the British shoe industry, "average production per person employed per annum (equivalent pairs) weighted according to net worth of output" rose from 772 in 1930 to 1,030 in 1945. That looks pretty good. But comparison of the index numbers for "output of shoes equivalent to men's shoes per man-hour" made in 1935 shows that if British production were 100, United States production was 202. The report goes on to indicate that information on the United States shoe industry, received in 1945, shows this gap has not narrowed. There you have the picture. While British productivity may have risen in recent years, the rise has frequently begun at a point below the American level, continued upward at a slower rate than in America, and today rests at a point below current American rates, as it did in the beginning.

Result: A socialist government must exhort the workers to work harder, deprecate wage increases, ask unions to delay demands for a shorter workweek —all to (a) increase exports and (b) build the hope of one day recovering prewar domestic living standards. Workers are frankly told, at last, that only through higher productivity can the nation prosper, and that they must accept the new machinery this will require.

Every government scheme for social betterment through redistribution of national income via taxes is jeopardized by low productivity. Every government scheme to rehabilitate British industry therefore includes a huge capital investment to pay for modern machinery to increase worker productivity. Socialist leaders are placing ever-increasing emphasis on productivity.

In Russia, the most important taxes are the turnover tax and the profits tax. In 1945, the latter yielded less than one-fifth of the budgetary forecast. This can mean only that production was far below schedule and profits therefore did not materialize or that costs had risen and absorbed anticipated profits. The turnover tax also declined because production was not maintained at planned levels. There simply wasn't enough stuff to sell to produce the expected revenue. The Russians, under communism, are still subject to the immutable law that you can't take out more than you put in. If conditions in Russia are to improve, there must be more production and higher productivity per worker.

American standards of productivity are world standards. We lead; others follow. In their rehabilitation campaign, the British measure their deficiencies in productivity against American standards and then set those standards as targets at which to aim. It is to the United States that the whole world turns when it wants to study the techniques of high production rates. The Russians rarely waver in their admiration of our technological efficiency. When they cast doubts on our capacity in this direction, it is to raise the bogy that "the capitalists" cannot make full use of all technological developments because of the "social relationships" they insist on maintaining.

A similar argument is made by British socialists, who thereupon allege that, by adopting the "advanced" social form of nationalization, they can readily realize the highest productive efficiency. However this may be, the fact remains

that American productive efficiency today tops the world, and the attainment of comparable efficiency under other "social relationships" or forms is a thing of the future—if not a myth.

The current clamor about productivity in the United States is, therefore, different in degree if not almost different in kind. The basic points to be made are these: (1) Excessive wage increases, which anticipated rather than followed, or developed simultaneously with, increases in productivity, have forced up costs and prices. (2) The case for wage increases, insofar as it was based on a productivity argument at all, was based on the fallacy that wartime gains could be immediately translated into peacetime gains. It will take some time to translate them. Meanwhile the all-over gain in productivity in the war years was but a fraction of what would have been achieved in a comparable span of years in peacetime. (3) The normal postwar slackening of worker efficiency was brushed aside by the trade-union leaders as a libel on labor, whereas it was an important reality. (4) At the same time that pressure for wage increases was growing, the uneven flow of materials, caused by production bottlenecks (created, in part, by faulty price controls) disrupted production. (5) Instead of supporting the traditional and socially indispensable three-way split, to the workers in wages, to the public in lower prices, to management in profits, unions tried to collect all the gains of an alleged increase in productivity. (6) Propaganda about the share of production going to "the capitalists" as profits has deflected worker attention from the importance of increased productivity as the real road to higher wages and better living standards.

The recent Conference on Productivity in Washington may help get this country on an even keel with regard to this vital question. The improved statistics needed really to understand and create undertanding of the matter may soon be forthcoming. The United States may lead in productivity today, but the road ahead is still wide open and should be followed. Unless the country can stay on it, high wages uncompensated by a correspondingly high productivity will cause permanent price inflation, result in permanently lower real wages, depress enterprise, and make high levels of employment and rising living standards more unlikely than there is any need for them to be.

By C. Hartley Grattan. *Barron's*, December 2, 1946, p. 3:2.

Industrial Modernization Plans

To determine how widespread are plans for current modernization of manufacturing facilities and techniques and to what extent such modernization is expected to be completed by October, 1947, *Mill & Factory* recently conducted a survey among all types and sizes of manufacturing companies.

The survey indicates that 52 per cent of the respondents are planning to modernize or expand equipment or building facilities in the next 12 months. Among those respondents who are planning expansion programs, 80 per cent plan acquisition of new production machinery. New plant equipment is on the program for 75 per cent of those scheduling modernization of facilities. The average sum of money to be spent on new production machinery is $190,000; new plant equipment, $153,073; new buildings, $257,384; expansion of existing buildings, $612,750.

Only 21 per cent of the respondents have definite plans for additional modernization or expansion beyond October, 1947.

—*Mill & Factory* 10/46

Office Management

Reducing Communication Costs

THE problem of combating wasteful communications expenditures—particularly those incurred in the flurry of the late afternoon rush—is one which every cost-minded office manager must seriously consider. Telegraph, teletypewriter, and long-distance telephone expenses should undergo scrutiny at regular intervals to uncover any "bugs" in the communications procedure. Constantly accelerated airmail schedules should make it possible to keep telegraph and teletypewriter costs on the downgrade. Even for foreign-bound traffic, airmail is becoming an increasingly efficient communications medium.

For fast messages to and from other countries, use of code often offers immediate savings. Code rate per word is only 60 per cent of the fast message plain language rate. Thus, where a fast message plain language word costs 20 cents, code costs 12 cents. Carriers give both classes of service equal attention. Several standard codes are in accepted international use, but a practical way to dent cable costs is to compile a private code for use in conjunction with a specific standard code. A private code will include symbols for the sender's products or services and phrases peculiar to the enterprise. The most valuable feature of a standard code is its richness of general utility words and phrases. Private codes may be of either the dictionary or numerical type. The latter kind, sometimes known as cipher, permits an exceptional degree of condensation of text into relatively few code words. In cases where many cables are sent daily, use of numerical codes invariably produces maximum savings. Even though the code rate per word is about 27 per cent higher than cable niteletter, it's faster—and often cheaper in the long run. Private codes may be compiled by the company itself or with the assistance of a competent specialist.

Many American organizations regularly revise their private codes and, at intervals, compile completely new ones. Economies effected through use of code are available to foreign correspondents. When a distributor is supplied with an American private code, and is thus enabled to reduce costs on his messages, trade relationships are, of course, favorably affected.

Inasmuch as telegrams permit use of a clipped form of English, it is wise to apply, in some degree, the same limited form to other types of written communications within an organization. The logical point of attack is interoffice correspondence, though even broader areas of application may be found.

The use of basic English, wherever possible, will help pare telegraph costs. Likewise, use of basic *grammar* in telegrams will effect savings. For example, future tense can nearly always be eliminated. When an incoming message asks, "When and how will you ship order?", the answer may safely read "freighting tomorrow." Present tense plus date renders future tense unnecessary. "Freighting" is a shorter way of saying, "will ship by freight." The trick is to look first for the words and phrases of frequent repetition and play around with them until the briefest, hence cheapest, wordings can be developed.

Users of teletypewriter service can, by dint of constant application, make important reductions in expense. User must always keep clearly in mind that teletypewriter service is nothing but a digital conversation. An executive can stand beside a teletypewriter, dictate to the operator, and watch her type, just as a typist would, directly from dictation. As the message is being typed, it is visually and simultaneously recorded on addressee's teletypewriter. With smooth coordination between a rapid teletypist and the person dictating, a conversation between two distant cities can be effected at a cost far below that of phone—with net savings of as much as 50 per cent.

Because teletypewriter service is chargeable on time basis, users should ferret out all possible short cuts, especially in words for product and in repetitive words and phrases. When the manual cost of teletypewriter operation begins to exceed $100 monthly, it is time to consider installation of an automatic sender. This is a device which, when attached to teletypewriter, makes it possible to send 60 words a minute, regardless of the speed of the manual operator. Further, teletypewriter service has one immense advantage over telegraph—instantaneous delivery. This advantage is bound to increase in value with the heightening tempo of American business.

Because of the instant-delivery feature, teletypewriter service can be used to tie in with airmail if there are airports in cities of sender and addressee. If a New York firm has lengthy communications for Los Angeles and Honolulu, it can, during a routine teletypewriter hookup with its San Francisco office, include text of the communications, indicating they are to be put in airmail envelopes addressed to Los Angeles and Honolulu. Such techniques may obviate need for telegrams without any loss of valuable time.

If a firm has a rule requiring that outgoing messages receive certain initialled approval before dispatch, studies should be made regularly to ascertain whether any such rules are causing unreasonable delays. If approval is required for long-distance phone calls, but not for competing forms of communication, senders may be substituting telegram or teletypewriter for phone when dubious about getting calls approved. Also, communications operators should be permitted some leeway in recasting text of messages—such as substituting "have you" for "do you have," or "contact" for "get in touch with." And finally, all personnel should be constantly reminded of the 25 per cent tax burden, which is another good reason for intelligently pruning telegraphed messages.

The Office, September, 1946, p. 58:4.

Cooperative Educational Programs

OF a large group of representative employers surveyed recently by The Association of School and College Placement, 20 per cent have cooperative arrangements with local colleges and universities whereby the students put in alternate periods of study and practical work experience. Thirty per cent have varying arrangements with high schools and colleges under which the students may work after classes during the summer or the employees may take courses after hours. Employers favored a high school course comprising mathematics (2-4 years), English (4 years), typing (1-3 years), accounting or bookkeeping (1 year), vocational or manual training (1-2 years), shorthand (2-3 years), history (2-4 years), business administration (3-4 years), spelling and vocabulary (1-2 years).

The Office Engineer

TOO few people recognize the similarity of factory production and office production. Both actually aim toward a common objective. In the factory, the industrial engineer is on a constant lookout for a better way of performing manufacturing operations, either through use of new equipment or new methods. He is never satisfied that present methods of performing operations are the best. He constantly strives for a better product at the same price, the same product at a lower price, or both.

Management's problem in the office, as in the factory, is to insure efficient use of equipment and methods to achieve maximum production with the minimum of time, effort, personnel, motion, and space. This is the function of the office engineer. It may be said to be the office manager's function. However, the solution to any problem lies in "sustained, concentrated thinking along a given line together with the application of plain common sense." How can an office manager, with all his other duties, give undivided attention to just one of the problems connected with operation of an office? It all adds up to an argument in favor of specialization within the office management group.

The office engineer should constantly seek ways of increasing clerical production, since clerical costs add to the cost of the company's products. An equally important by-product of increased clerical production is better customer service.

The functions of the office engineer may be classified as follows:

Equipment (furniture, machines). He must (a) study the actual requirements to be filled; (b) establish the normal applications and limitations of equipment on the market; then (c) select the available equipment to fit the need. Additional factors to be considered are: initial cost, upkeep, floor space, special operator qualifications—if any—and other means of performing the particular operation with different equipment.

He is responsible for constant research on new products as they appear. Many new products are of definite value to a company yet are often unknown to those who would have use for them. Their usefulness within the organization should be tested and evaluated, and this information passed on to the department heads concerned.

An equipment catalog—divided into sections devoted to each of the major types of equipment—should be prepared and distributed, illustrating and describing the normal and special uses of equipment for routine operations available within the firm. It may be possible to quote certain routine jobs as examples to show the type of work the equipment performs. The catalog should be in a fluid state permitting constant additions and deletions. A new equipment bulletin should be issued in which new products would appear after their definite uses to the company have been determined. The firm's own stock numbers should be assigned to this equipment to facilitate inter-office correspondence. Cost prices might be shown.

A company may require a type of equipment which either is not manufactured or, if manufactured, does not meet specific needs. The office engineer must design and develop the desired equipment. If this seems a large order, we come back to the fact that if enough concentrated thinking is

applied to a problem, plus a little common sense, a solution can usually be worked out. Whenever a new piece of equipment is developed internally and accepted, it should be incorporated in the equipment catalog.

Methods. This phase of the work merits as much time as can be devoted to it and will really pay off in terms of increased production. Present methods in connection with clerical operations should be studied and analyzed so that strictly routine jobs can be readily distinguished from special and semi-routine jobs. After completion of the job classification, work standards should be established covering clerical operations within these jobs. The standards should be in published form to enable each department head to determine readily whether his clerks are working efficiently.

It is the responsibility of the office engineer to recommend new methods, applying all the basic principles of work simplification, to replace existing methods—thereby increasing clerical production or lowering operational costs in other respects.

Due consideration should be given the use of equipment, whether it be automatic or manually operated. Certain operations may be performed by hand that can be more efficiently performed by machine, and vice versa. Thought should also be given the use of work aids or "tools" for each worker. This field is wide open for any office engineer and will pay the company good dividends in increased clerical production. Work aids are usually neither costly nor difficult to construct. Many are available in the normal market.

Part of the methods program is cataloging the "one best way" of doing every routine clerical operation. This file should be available for ready reference to inform an executive interested in adding a new employee as to equipment, work standards, and the best way of doing the operations within the new job.

Trouble-Shooting. The office engineer's department should be the clearing house for all production problems within the office—assisting department heads and individuals within departments with their clerical operations problems. He should analyze the problems and determine a solution. Some will be petty items, but enough will be of sufficient importance to warrant such a service. The office engineer in time will know readily the solutions to all the common problems and be able to offer almost immediate relief. He should study and determine the best method for solution of unusual problems.

Centralization and Standardization. He should prepare a study of the advantages and disadvantages of centralization and standardization of both equipment and methods within the organization. The benefits of either depend entirely upon the company's make-up.

Purchasing Control. All purchase requisitions for office equipment should be approved by the office engineer to insure the right equipment for the job. Since he is the person primarily concerned with equipment and its application, he should be the one chiefly concerned with its economic life. It should therefore be his function to prepare the annual equipment budget and plan the over-all replacement program covering equipment. He should also study maintenance and repair costs so that he will be in a position to control them.

By W. E. Thomas. *The Office,* October, 1946, p. 70:4.

Raising Typists' Quality Standards

THE quality of all typing work at American Cyanamid Company, Bound Brook, N. J., has been given a considerable boost as a result of the company's special training program. Incoming typists are first put through the induction process, during which they are briefed on the history of the company, organizational setup, employee benefits and services, product information, and company personnel policies. This is followed by a short course in business manners, telephone technique, and simple filing.

The second part of the course is designed to make every new typist aware of the quality of work which the company requires—and to provide the training for turning it out. Trainees are instructed on the use and care of typewriters; typing shortcuts; stencil cutting and typing for hectograph machines; tabulations and typing of numerals; spelling and vocabulary; English; and technical nomenclature used in connection with company products or processes. All typists undergo accuracy and speed drills, during which emphasis is placed on the correction of individual weaknesses.

At this point actual production work is begun. The trainee is taught the correct setup of forms, letters, etc., and is provided with a manual illustrating model arrangements. Each typist's work is checked by her supervisor until it is felt that she has fully absorbed her training and is turning out work of the desired quality.

The program has produced excellent results. The company feels that its own specially trained typists are far superior to the average outside typist and backs this up by strict adherence to a promotion-from-within policy by which workers from this group are given first consideration when better jobs become available.

—From an address by Madeline C. Gorman at the International Business Show, New York.

Revolving Table Speeds Work

OBSERVATION of a revolving table in a store-window display led to the development at the United States Rubber Company of unusual equipment that saves time, expense, and manual effort in the collation of large runs of duplicated material. Built to order from specifications worked out with the firm's mechanical experts, this revolving, rubber-covered table, is equipped with a variable speed control and operates with a heavy duty electric motor and friction drive. It seats as many as 10 workers, made comfortable with posture chairs, for most efficient handling of material in the duplicating department. The 30-inch height that eliminates stooping furthers the comfort of workers. Employees prefer a high rate of speed as they make up sets from piles of duplicated forms or letters on the revolving table.

Collating costs were formerly high, as "walk and pick-up" collating required considerable time. Even when work was passed from hand to hand to increase speed, the chain suffered an immediate break when a single employee left the group for a moment.

Now the revolving surface makes collation so rapid that a small group of workers handle a large run in five or 10 minutes, average collation ranging from 4,000 to 10,000 sheets, with runs occasionally as high as 50,000. When work is exceptionally heavy, the department may engage several temporary employees for a short period.

—VIVIAN KENT in *Office Management and Equipment* 5/46

• TO AID JOB CANDIDATES in "selling" their achievements to prospective employers, a unique job-getting résumé service has been established by a New York City employment counselor. Job candidates mail their application letters and résumés to the counselor, who analyzes them from an employer's viewpoint, edits and revamps the data, and mails the client back a streamlined résumé slanted for the specific job sought. The fee for the service is nominal.

Personnel

What Should We Do About the Wagner Act?

THOUGH a constant target for attack both in the press and Congress, the National Labor Relations Act has weathered 11 years of controversy without undergoing any change. In this writer's opinion, the general effects of the statute have been salutary. In the light of present conditions, however, the Act would be enormously strengthened by certain changes which would impose upon unions legal responsibilities commensurate with the power they have achieved under the Act.

In a field as explosive as labor relations, it is unfortunate that employers do not, like employees, have affirmative rights which can be invoked before the nation's highest labor tribunal. When only one of the two great economic groups involved in labor disputes can go to the regional offices of the Board and seek friendly advice regarding the solution of its problems, the members of the agency with whom it confers gradually become conditioned to looking at these problems from the viewpoint of those who seek their assistance.

One major reform which the NLRB itself has within its power to grant is an amendment to the rules with respect to petitions for an election. It was not until 1940 that an employer was given any right to file a petition. Then this rule was limited to the situation in which an employer was confronted with conflicting claims of representation by rival labor organizations. Since the Board also has a rule of decision which prevents a group of employees who wish to be represented by no union from filing petitions, there is no way today by which an employer or an unorganized group of employees can have a representation question answered by the Board, if there is only one labor organization in the picture.

Though some state boards, including the New York Board, have given employers the right to file petitions in a single-union situation, the National Board has never done so.

In 1944 the NLRB issued a proposed amendment to its regulations, giving employers the right to file petitions under such circumstances. At a hearing on the proposed rule, however, spokesmen for the CIO were clamorous in denouncing the new regulation, with the result that the rule was never adopted.

Since the war certain unions have attempted to continue their representative status in perpetuity by threats of strike, even though the NLRB in recent years has held that the mere ability of a union to shut down a plant by striking is not legal proof of a majority. There would seem to be no good reason today why an employer, if threatened with a strike or secondary boycott by a union which is unwilling to file a petition for an election, should not be permitted the initiative in asking the Board to settle the issue by secret ballot. The general counsel's office of the AFL has in the past opposed the employer petition rule on the ground that it would give an opportunistic employer a chance to kill incipient unionism in the bud by filing a petition at the first sign of organizational work in his plant. If the rule is limited, however, to situations in which the union itself is claiming a majority status and is threatening economic pressure to achieve recognition, it is difficult

to see how any union which was willing to conform to the Act could have a legitimate grievance.

In recent years, the Supreme Court has held that in a labor controversy the right of employers to express their views is protected by the First Amendment. Nevertheless, the Board, if an employer is guilty of any other unfair labor practice—no matter how remote or severable—has denied him the right to speak his mind about the union under such circumstances. Such a rule of decision seems unsound, if an employer's arguments stop short of threats of economic reprisal. Quite apart from any constitutional issue, the right of each side to engage in propaganda should be coextensive.

Such rule-making reforms as these lie within the jurisdiction of the NLRB itself. There are, however, certain equally obvious reforms which can be brought about only by Congressional enactment.

A step which would help carry out the real objectives of the Wagner Act would be an amendment which would make strikes illegal that have as their objective the securing of a condition contrary to the policies of the Act.

The statute, for example, forbids closed shop agreements with minority unions. Yet it is not unusual for labor organizations which lack a majority to strike for such objectives.

The NLRB itself has a rule which makes it an unfair labor practice for an employer, once a representation petition has been filed, to recognize either of the contending union factions until an election has been held. Nevertheless, certain unions have jumped the gun by striking for recognition under these circumstances. In all these cases it would seem that the Board should be given authority to protect employers from the pressure of these illegal demands by citing the offending labor organization for unfair labor practices. In some instances it would be sufficient if the Board, as it did with respect to strikes in violation of the Wage Stabilization Act, would refuse to reinstate the strikers if their employer discharged them.

In the case of the unions which have a monopoly on labor, stronger remedies are necessary. In these situations, the NLRB should be given the same power to enforce its orders in the Circuit Court of Appeals that it possesses with respect to recalcitrant employers.

Under the present arrangement, the NLRB has the duty of issuing its own complaints as well as deciding which petitions for election should be the subject of hearing. In practice, since there are about 10,000 cases filed with the Board each year, the Board has delegated these preliminary functions to the several regional offices. Consequently, it is very rare that the NLRB members themselves know anything about a case until a hearing has been held in the field and the findings of the trial examiner are brought to the attention of the Board in Washington on a bill of exceptions. Nevertheless, the fact that employees of the Board have already taken an official position on the issues involved causes many litigants to feel that the Board itself is predisposed to one side of the issue, despite the fact that the present Board is composed of fair-minded men with no axes to grind in the labor relations field.

Should Congress transfer the regional offices which have the prosecuting and judicial functions to a division of the Department of Labor, it would merely be following the pattern set in the creation of the Board of Tax

Appeals (now called the Tax Court) which operates outside the framework of the Treasury. The Commissioner of Internal Revenue determines the preliminary construction to be placed upon the Revenue Acts and appoints lawyers to represent his views in litigation before the members of the Tax Court.

The foregoing suggestions are not put forth as any panacea for major strikes on wage questions. Indeed, it is difficult to think of any Congressional solution of such stoppages which would be short of envisaging a planned economy. It is important, however, that Congress carry out the duty of codifying the rules of the game which are generally accepted.

BY GERARD D. REILLY. *Industrial Relations,* September, 1946, p. 5:7.

Simplifying Wage Adjustments

MANAGEMENT is giving close attention to cost-of-living bonuses and wage adjustments as possible answers to two difficult questions: (a) How can time-consuming contract reopenings, caused by instability of prices and living costs, be eliminated? (b) How can business meet employees' needs for pay adjustments now without saddling itself contractually with inflated wage rates which will no longer be needed to balance inflated living costs if prices decline during the coming year?

Management representatives interested in interim or cost-of-living wage adjustments should have as required reading a detailed report recently issued by the United States Department of Labor's Bureau of Labor Statistics, "Adjustments of Wages to Changes in Cost of Living." Copies are available on request through the department's Industrial Relations Branch in Washington.

Of the many wage adjustments which already have been made, major programs—excluding those which raise basic wage rates—follow two general patterns: (1) bonuses agreed upon by management and employees, or granted voluntarily by the employer, which do not change basic wage rates or salaries and do not pretend to be statistical revisions to meet changes in living costs; (2) adjustments geared directly to changes in living costs and subject to mandatory revision whenever cost indexes fluctuate.

BONUS PLANS.—Bonuses are popular with employers primarily interested in maintaining basic rates as they are. Such payments, though made on a definite schedule, do not become part of the basic wage structure if the employer makes clear that they are being given to bring wages and living costs into balance and will be discontinued when (1) changed economic conditions ease the pinch on workers, or (2) rewritten contract terms formally raise wages to compensate for increased living costs. Typical bonus plans are in the oil industry. They include:

Standard Oil of Indiana. Salaried employees and wage earners receive a week's wages, with $100 as a maximum, to cover the period to January 15, 1947. Relatively small groups which have received general wage increases since July 1 have been excluded. Bonuses, instead of general wage boosts, were ordered, according to the company, because it felt that it could

not "intelligently determine . . . general wage and salary increases until it can be more definitely established what the level of the cost of living will be."

Continental Oil. Seven thousand employees will be paid $50 each in December, to cover November and December cost adjustments, and will receive a similar payment in February, 1947, to cover January and February.

Phillips Petroleum. Employees paid two weeks' basic wages.

Barnsdall Oil. Bonuses of $25 a month to be paid in November, December, and January.

PRICE INDEX PLANS.—Typical of the plans geared directly to living costs are the following, both of which tie wages specifically to the consumers' price index of the U. S. Bureau of Labor Statistics:

Chicago Times. Employees, represented by the American Newspaper Guild (CIO), receive a bonus of 1 per cent of base salary for each 1 per cent rise in the BLS index for Chicago living costs, but no more than a 19 per cent bonus will be given. Adjustments will be made one week after each new BLS figure is released. The bonus clause is written to provide for adjustments in both directions; payments are to be reduced if the index declines. Unlike "escalator" wage clauses which fell into disrepute with labor after the last war because ultimately they called for wage cuts as prices slumped, the clause does not affect base salaries. Declining living costs might wipe out the weekly bonus, but they would not make a wage cut permissible.

Gimbel Brothers. Members of the Retail, Wholesale & Department Store Workers' Union (CIO), who recently won a 25¢ hourly wage increase, also agreed with management on a clause which provides for a wage reopening whenever the BLS index for New York shows an average change over a 60-day period of 15 per cent above or below the figure for September, 1946. However, no decrease will be permitted to cut rates below those in effect May 1, 1946, or below those paid by comparable stores in the area.

VARIANT.—A third type of agreement (which directly affects basic rates) has been signed by the Amalgamated Clothing Workers of America (CIO) and the Clothing Manufacturers of the United States, covering 150,000 workers in men's and boys' clothing plants. The plan calls for a 12½¢ hourly cost-of-living wage adjustment, about $5 a week, computed on the basis of a rise in living costs amounting to 10 per cent or 11 per cent since last December. At that time, the two parties agreed on a 15 per cent wage increase.

Business Week, November 16, 1946, p. 86:3.

AMA WINTER PERSONNEL CONFERENCE

A Conference of the Personnel Division of the American Management Association will be held on Monday, Tuesday, and Wednesday, February 24-26, 1947, at The Palmer House, Chicago.

Formulating a Seniority Policy

SATISFACTORY employer - employee relations depend in large part on the existence of a sensible, fair, and clearly defined personnel policy; and in the development of such a policy the principle of seniority cannot be disregarded. It is highly important, however, that recognition of length of service be sufficiently qualified by other factors and adapted to the particular operational necessities of the plant.

In determining where to apply seniority, management should keep in mind that the *more purposes for which seniority is used, the greater the restrictions placed on management's freedom of action.* The most common application of seniority is to determine the order of layoffs and rehires. Second most important use is to determine job allocations, including promotions and demotions within the bargaining unit, transfers, and the filling of vacancies. Seniority may also be used as one of the factors for making other decisions less vital to job security, such as selection of vacations and eligibility to overtime.

Qualifying Factors. In drafting a seniority policy it is of the utmost importance that the factors limiting length of service be clearly detailed and not left to implication. The most common qualification to length of service is ability to perform the work. Past experience and knowledge of job requirements will indicate the advisability of enumerating such other factors as performance, physical fitness, merit, training, skill, attitude, etc.

It is advisable to state explicitly in the contract that decisions regarding employee ability rest solely with the employer. Sometimes a modifying provision permits the union to appeal through the grievance procedure alleged arbitrary or discriminatory decisions.

Another possibility to consider is the advisability of modifying seniority according to the *purposes* to be accomplished. For example, straight seniority might be used to determine time off or eligibility for vacation, while seniority modified by ability and performance would determine order of layoff and rehire. In promotions primary consideration should be given to merit.

Determining the Seniority Unit. Whether seniority should operate on a company, plant, departmental, or occupational basis depends largely on the size and organization of the enterprise and the variety of operations and skills employed. The basic principle is that seniority, when used to determine employee placement, operates most successfully within a unit in which skills are interchangeable.

On the other hand, it must be recognized that plant-wide or even company-wide seniority is the most attractive unit from the employee point of view, particularly as it relates to long-term layoffs or recalls. Reason, of course, is that this type of unit equitably relates job security to length of service, a strong equitable argument in its favor.

Where all operations within a plant are sufficiently similar to permit movement of employees to any job in the plant, *plant seniority* would be the most workable unit to adopt.

Departmental seniority, which means that seniority is computed only on length of service in a particular department, would be indicated in an enterprise in which work within a department is interchangeable. Because of the difficulty of transfer, a plant employing a variety of non-interchange-

able skills probably would be better off with a provision for plant-wide *occupational or job seniority*. Though many contracts fail to enumerate the departments or occupational groups within which seniority is to operate, such specific listing is recommended because it reduces the possibility of misunderstandings arising from the definition of seniority units.

Company seniority is based on length of service with the company and provides, where more than one plant is involved, a much larger unit for the operation of seniority. Company-wide seniority for purposes of employee selection or placement in multi-plant firms is dangerous because a shutdown or layoff in one plant would in most cases result in disorganizing operations in other plants. The resultant chain of "bumping" also has a bad effect on employee morale, particularly if the plants are not situated in close proximity to each other.

From What Date Should Length of Service Be Reckoned? The basic consideration in determining the date from which seniority accrues should be fairness to all employees. With very few exceptions, the date of original hire is the fairest date from which seniority should accumulate. A very common and desirable practice is to exclude probationary employees from initial seniority coverage. It is then applied retroactively to the date of hire upon satisfactory completion of the probationary period.

Transfers and Promotions. As far as possible, a transfer should not affect an employee's status in relation to all employees in the plant, though it necessarily changes his relative status within the seniority unit. In a plant in which departmental, occupational and plant seniority exist, the following type of provision offers an equitable means of protecting employee seniority in the event of transfer:

> When an employee is transferred from one job to another within the same department, his job seniority on the job from which he is transferred shall cease accumulating. His seniority on the new job shall be based on his length of service in the new job, but his department seniority and plant seniority shall be increased by the length of his continued service.
>
> When an employee is transferred out of a department, his seniority in the former department shall cease accumulating. His seniority in the new department shall be based on his *cumulative* service in the new department, but his plant seniority shall be continuous and shall increase with the length of his continued service.

In the event that a transfer is of short duration because of layoff or failure of the employee to perform adequately on the new job, the transferred employee should be permitted to resume his status quo with accumulated seniority in his former department or previous job.

Provisions for Interrupted Employment. A workable seniority policy must allow for the maintenance of seniority credits during legitimate absences from work. Study indicates that there is considerable uniformity with respect to the types of absences which are recognized as legitimate for seniority purposes. These include military leave, absence because of accident or illness, layoff for a period of less than 12 months, or any authorized leaves of absence. To prevent misunderstandings, it is advisable to state specifically what constitutes an authorized leave.

Excluded Groups. It is suggested that seniority not be applied to the following:

1. Skilled or specially trained employees. To assure efficient plant operation

when the workforce is reduced, it may be desirable or necessary to exclude highly skilled or professionally trained employees from the seniority provisions. Because union-management disagreement may occur over the exclusion of particular employees from the operation of seniority, some companies use a clause providing for a blanket exclusion of a specific number (usually about 10 per cent) of employees.

2. Supervisors. Strict application of seniority to supervisors might, in time of business contraction, force the demotion or discharge of supervisors of exceptional ability. Thus seniority clauses should be carefully drafted to exclude supervisors from their application, except insofar as it is necessary to protect the cumulative seniority of supervisors who may be demoted to the ranks.
3. Disabled workers. Exclusion of disabled workers is likely to become more common with the increased employment of veterans. In the event that an enterprise employs disabled workers, it is recommended that they be excluded from seniority provisions.
4. Emergency cases. It may also be wise to provide that the seniority clauses shall be inoperative in the event of a temporary shutdown or reduction of force, or in case of emergency conditions.

From *Seniority* (Management Memo No. 1), National Association of Manufacturers.

Employment Bonus Plans Boost Recruitments

A TIGHTENED labor market in various areas at the very time when many companies are embarking on expanded production programs has revived the employee bonus plans that were used during the war as a recruitment aid.

Under the plan in effect at the Edison General Electric Appliance Co., Inc., at Chicago, the employee making a referral receives $2 when the person referred has been actively employed for one regularly scheduled week. After the new worker has been on the job for four scheduled weeks, the employee making the referral is paid $5 more, and after 16 weeks, he receives an additional bonus of $10. Referrals are made via a special introductory card, which also gives details regarding the location of the plant, interviewing hours, and the names of the persons whom the applicants should ask to see.

Another company, whose personnel is largely female, pays a graduated bonus similar to the one described above, also awards the referring employee two pairs of nylons for each full-time female employee introduced who has been on the job for five days.

—From *Employment Bonus Plans to Secure Needed Workers* (The Dartnell Corporation)

Supervisors Participate in Management

AT the National Cash Register Company, Dayton, Ohio, weekly meetings of management members, from job foremen to the president of the company, include some of the following activities:

1. At each meeting a different department head outlines the operations of his department. Thus all members of management become acquainted with their respective duties and problems.
2. New job foremen are introduced and their new duties are described to the group.
3. Production records are analyzed.
4. Heads of non-productive departments tell the nature of their services. Sales, cost, and industrial relations activities thus come to the attention of the assembled management group.
5. Special problems encountered by foremen receive the pooled thinking of the group in order to arrive at a solution.
6. Outstanding achievements or records made by foremen receive commendation.
7. Future plans or operations are explained.

—*Management Information* 9/30/46

Freedom of Speech and the NLRB

THE problem of employers' right to "free speech" about labor unions is one, unfortunately, which has been obscured somewhat by misunderstanding. The underlying question is not, as some NLRB critics have suggested, whether the Board should prevent employers from expressing their views. It is, rather, whether an otherwise lawful expression of opinion is, in a particular case, so closely associated with *acts* of a coercive character that it falls without the constitutional privilege.

It is the Board's present opinion, as reflected in repeated decisions, that it certainly was not the intent of Congress that the Labor Act forbid an employer to express opinions about labor unions, so long as his expressions do not constitute acts or threats of discrimination or intimidation, or denial of his employees' uninhibited exercise of their right to organize, free from employer interference. In short, the object of the Board's concern in the so-called "free speech" cases is interference with a right rather than with an utterance concerning that right. Employees are entitled to be, and should be, protected in the selection of unions of their own choosing. The proscription, therefore, runs against coercion rather than against expression. The question in every such case is whether, *in fact,* the employer's conduct does or does not constitute coercion. If it does, he cannot successfully invoke the Constitution of the United States; if it does not, that same Constitution provides him with an impregnable shield.

There are Board decisions, many of recent date, in which the Board *refused* to set aside elections or to issue cease and desist orders against employers who, either through speech or literature, have merely expressed themselves on union issues. Illustrative of the manner in which the NLRB appraises such situations is a comparatively recent case. The complaint against the employer alleged that he had violated the Labor Act by certain pre-election activity, which consisted of issuing statements, notices, and letters, and making speeches. After reviewing the evidence in the record, the Board said in its decision:

> By such statements, notices, letters, and speeches, the respondent expressed a preference to deal directly with its employees rather than through an outside organization. However, the respondent made no threat of any sort and coupled its statement of preference with clear expressions assuring the employees that the respondent would not resort to reprisal to retaliate against any exercise of any right guaranteed in the Act. . . . Such conduct falls within the constitutional guaranty of free speech and is not a violation of the Act. We agree therefore with the Trial Examiner that the respondent's pre-election announcements . . . standing alone were privileged. . . . We shall, therefore, dismiss the complaint.

That is one type of decision that the Board has issued. Quite different is the situation where an employer has gone beyond a mere attempt to persuade. When to persuasion other elements are added which bring coercion, or give it that character, we have held, as the Supreme Court has put it, that "the limit of the right has been passed." In answering the question as to whether the permissible boundary has been transgressed the Board has replied in the affirmative where the employer's utterances carried actual or implied threats, intimations of reprisal, or promises of economic loss if the employees did not follow the employer's wishes. In such

cases we have set aside elections or directed an employer to cease and desist from interfering with his employees' right to self-organization. After all, the selection of employees' bargaining representatives is primarily the employees' business, just as the selection of an employer's representatives is primarily his affair. Sound policy dictates, and the Wagner Act assumes, that employers should not intrude upon that choice, subject always to their constitutional right to express an opinion.

The third type of "free speech" cases with which the Board is confronted is that of the employer whose interest in union matters is expressed in acts (for example, discriminatory discharges) as well as by speech. The posture of the law in such cases is simply this: Where the employer's utterances are an integral part of his anti-union course of conduct, those utterances can be evaluated as part of all his associated activities, and may be found to be coercive in that context.

The fourth type of case, involving an issue on which no court has yet spoken definitely, is best illustrated by reference to a recent case. The management admittedly had engaged in an anti-union campaign during the several days preceding a collective bargaining election. An hour before the election the management turned off the power in the plant. All operations were brought to a halt. And, during working hours, a large group of employees were directed by foremen and by broadcasts through the public address systems to assemble in a particular part of the plant. They were being paid for the time they spent in attendance, listening to the speeches made by management officials. In effect, the employees were compelled to attend and to listen because of the employer's control over his employees during working hours. The only way the employees could have avoided listening to such speeches would have been for them to leave the premises, which they were not at liberty to do.

Under these circumstances, the majority Board found that the employer had violated the Labor Relations Act, and ruled:

> . . . The conduct of the respondent in compelling its employees to listen to a speech on self-organization under the circumstances hereinabove outlined . . . independently constitutes interference, restraint, and coercion within the meaning of the Act. The Board has long recognized that "the rights guaranteed to employees by the Act include the full freedom to receive aid, advice, and information from others, concerning those rights and their enjoyment." Such freedom is meaningless, however, unless the employees are also free to determine whether or not to receive such aid, advice, and information. To force employees to receive such aid, advice, and information impairs that freedom; it is calculated to, and does, interfere with the selection of a representative of the EMPLOYEES' choice. And this is so, wholly apart from the fact that the speech itself may be privileged under the Constitution.
>
> The compulsory audience was not, as the record shows, the only avenue available to the respondent for conveying to the employees its opinion on self-organization. It was not an inseparate part of the speech, any more than might be the act of a speaker in holding physically the person whom he addresses in order to assure his attention. The law may and does prevent such a use of force without denying the right to speak. Similarly we must perform our function of protecting employees against that use of the employer's economic power which is inherent in his ability to control their actions during working hours. Such use of his power is an independent circumstance, the nature and effect of which are to be independently appraised. We conclude, therefore, that the respondent exercised its superior economic power in coercing its employees to listen to speeches relating to their organizational activities, and thereby independently violated Section 8 (1) of the Act.

These four types of cases, then, encompass the various situations in which

it might be said the Board is confronted with the question of "free speech." The decision on each supports the Board's view that an employer's right to express his opinion to employees with respect to labor issues is secured by the First Amendment, *if* it falls short of being coercive. The statement must appeal to employees' reason, not to fear.

From an address by Paul M. Herzog before the Industrial Relations Sections of the Printing Industry of America.

Routing the Common Cold

SCIENCE is rolling up the curtain on an attack against respiratory diseases which now cost employers and employees some $1.5 billon yearly. There is hope at last that respiratory infections may be controlled by immunization.

A new vaccine developed by Army researchers for certain varieties of influenza known as "A" and "B" influenza has been tested and found most successful. It is estimated that the new vaccine protects about 60 per cent of a vaccinated group. While it is not certain how long the immunity lasts, a period of three to five months is considered most probable. The vaccine does not protect against other respiratory diseases, such as colds, tonsilitis, or grippe. But its discovery raises the hope that vaccines will shortly be developed for these other ailments.

The common cold and other respiratory ailments are ancient and hitherto invincible foes. During the past 30 years, when the medical profession tamed many a killer, it has been unable even to reduce absenteeism caused by respiratory diseases.

They are responsible for 40 per cent of all the time lost by workers due to sickness; it is estimated that men lose three to four days annually and women four to five days from respiratory diseases alone. At the present high levels of employment, the annual loss in working days would be about 200 million. The monetary loss to employees, figured at $5 per day, comes to $1 billion.

Sick-absenteeism (from non-tuberculosis respiratory diseases alone) costs employers approximately *$500 million a year.* And this does not take into account the decrease in efficiency during the onset of and recovery from such illnesses, and in the cases of workers who are not sufficiently ill to stay home.

—*The Wall Street Journal* 11/8/46

Supervisory Meetings That "Click"

THE Continental Can Company, Inc., McKees Rocks, Pa., for the past six or seven years has held daily supervisory meetings. Each member of the group of approximately 15 supervisors, in rotation, is chairman of the meeting for an entire week.

At each meeting production supervisors read their performance outlines for the previous day from a large blackboard prepared by department clerks prior to the meeting. Supervisors then discuss their efficiency levels, departmental problems and possible remedies, and, finally, their bonus earnings.

The production control supervisor comments on the schedule for the plant, checks flow of material, and reports the latest status of repairs to equipment. The quality and specification supervisor then discusses previous day's spoilage and quality reports, taking up individual problems with the various supervisors. The industrial relations manager reads the absenteeism report, discusses new policies, employment, safety, food service, human relations, and training. Finally, the industrial engineer reads off data on budget and bonus boards and comments on current trends, and the plant manager and his assistant discuss some timely aspect of the business. A final "griping session" is held by going around the board one member at a time.

—*Management Information* 10/21/46

Unions in Nationalized Industries

AMERICAN labor leaders have not demanded nationalization of industry because they felt it would deprive their organizations of freedom. Should a formula be devised which would provide nationalization and, at the same time, protect labor's freedom of action, union sentiment about nationalization would be subject to sharp change. The perfection of such a formula—the implications of which may be profound for American business—is currently being attempted in Britain, in coal—first of British basic industries to come under public ownership.

Negotiations between the National Coal Board and the National Union of Mineworkers, now under way, will determine what their relationship is to be when the board is vested with control of the industry early in 1947. Though the discussions are only in preliminary stage, it is already clear that N.U.M. will in no sense be a department of the government and that any analogy between the present role of Russian trade unions and the future position of the N.U.M. is entirely wide of the mark. It is equally clear, on the other hand, that the workers will not run the coal industry.

Under nationalization, British style, a public board will operate the coal industry. Theoretically, the coal board will be a model employer, but its fundamental relationship with the mine workers will be that of a buyer of labor, while the N.U.M. remains a seller of manpower. The union will continue to play its traditional role vis-a-vis the employer and maintain its traditional weapons, including the strike.

Statutory definition of the board's relation with the union merely obliges the board to consult with organizations representing "substantial proportions of the persons in the employment of the board" with a view to establishing joint machinery for: (1) settlement of "terms and conditions of employment, with provisions for reference to arbitration in the fault of such settlement"; and (2) consultation on "questions relating to safety, health, and welfare," and "other matters of mutual interest" to the board and the mine workers.

The pattern of board-union relations has become relatively clear as to both conciliation and consultation. On each of these subjects, representatives of both board and union will be able to meet at four levels—national headquarters, divisions (approximating the regional bodies of the coal board), areas, and pits. To the conciliation machinery will fall all matters relating to wages and to working conditions which are normally the subject of trade union negotiations. The consultative machinery will be concerned, at its various levels, with such matters as safety, health, welfare, and production.

Though the mine manager, representing the board, will continue to have full administrative responsibility, both board and union leaders believe genuine cooperation can be achieved between mine workers and managers by giving the men access to all relevant information—plan of the pit, managers' immediate and long-term programs, output figures, production methods, balance sheets, etc.

The real test of union strength in the nationalized setup will come on the issues now outstanding between the board and the union. These include: (1) demands for improved conditions laid down in the Miners' Charter of

January, 1946; (2) higher wages; (3) the closed shop.

In the case of the charter demands, the actual fight will be over the five-day week—whether the miners will be granted this as a production incentive or it will be a condition of such an increase. Present indications are that the board will take the latter view.

The charter makes no claim for increased wages, demanding merely that the average wage standards should not fall below those of any other British industry. When the 1944 wage agreement runs out in mid-1947, however, and the union is free to press for a general increase, the board—and the government—may be faced with a major decision, particularly if the concession means a boost in coal prices.

The N.U.M. will probably push the closed shop issue to a conclusion within the next few months. Since the Coal Industry Nationalization Act is vague on the subject, the board has had to assure N.U.M. that it will not recognize break-away unions whose purpose is to suggest that, as new unions, they are not bound by former agreements. But this does not mean the board will agree to the closed shop, even though N.U.M. membership already includes about 90 per cent of the workers in the coal industry, and current negotiations may bring in most of the others. Nor will the labor government necessarily risk offending its middle-of-the-road supporters by backing the union against the board.

The government is not merely involved in these questions in a general way, as any government would be, but directly through the Minister of Fuel and Power, who is authorized by the Act to intervene with the board in matters affecting the national interest. Moreover, the government is tied to N.U.M., and N.U.M. to the government, through affiliations in the Labor Party.

Some observers regard this tie as limiting the union's freedom of action. In point of fact, the union is in a strong position both on the five-day week and increased wages, since the industry's overriding need for manpower might, in any case, lead the minister as well as the board to agree to concessions making the industry more attractive.

If a general wage increase meant higher coal prices, a different problem would be raised. This would affect the whole economy and might cause unemployment elsewhere. Moreover, a strike for higher wages under these circumstances—which, like any other strike, the union remains legally free to call—would be a demand for a greater share of the nation's wealth than the community, as represented by the board and the government, deems just.

N.U.M. insistence on the closed shop, however, might provide a decisive test of union independence of the government. Present indications are that this issue will rouse a bitter national debate and that government support for the closed shop either in nationalized or in private industries might easily lose the Labor Party the next election. If the government decides the wind is blowing in that direction, it is hardly likely that the union would take the risk involved in insisting on its freedom of action.

Since nationalization of transport, electricity, and steel may not be carried out along precisely the same lines, and each may differ somewhat from the method adopted for coal, the exact pattern of union relations with the various national boards may not be identical with that now being developed in the

coal industry. But it seems clear enough that the position will be basically the same and that the unions in the other industries will benefit from the fact that Britain's dependence on coal gives the N.U.M. opportunity to stake out the ground very largely on its own terms.

Business Week, November 16, 1946, p. 92:5.

Production Management

Manufactured Weather for Industrial Efficiency

THOUGH the use of air conditioning is most frequently associated with theaters, restaurants, and other places of public assembly, it was, as a matter of fact, used in plants to increase efficiency and improve products as far back as the turn of the century—two decades before it came into popular use. And just as the science of manufactured weather had its origin in industry it seems certain that a great share of its future lies there too.

Modern air conditioning is simply a balanced composite of several old and familiar processes of atmosphere control. It involves air movement (ventilation) and air cleaning, both summer and winter, plus heating and humidification in winter, and cooling and dehumidification in summer. Thus fans, filters, heating coils, humidifiers, refrigerating compressors and dehumidifiers and integrated controls are the major equipment required.

The following are just a few of the process advantages to be derived from the use of air conditioning:

1. *Closer Tolerance.* Temperature may be held to fractional variation. This suggests its use in gage and standards rooms, laboratories, toolrooms, instrument-calibrating rooms, precision manufacturing, and precision assembly. At one large engine company only 14 per cent of 640 supervisors felt that tolerance standards could be maintained without air conditioning. General opinion was that scrap would be increased 10 per cent.

2. *Protection Against Corrosion.* Atmospheric humidity, which causes rust, corrosion or damage to finish, may be controlled, an important factor in precision machining and assembly. Condensation from the atmosphere, which causes occluded-oxygen corrosion, is prevented. Air conditioning also reduces or eliminates sweating of the hands and resultant acid or alkaline moisture, which frequently causes damage to finish or complicates processing.

3. *Uniformity.* Regardless of weather, season, or time of day, atmospheric conditions can be maintained at close tolerances. Thus delicate precision equipment does not change characteristics; parts, materials, and patterns in storage do not deteriorate; production rates are more uniform.

4. *Clean Air.* Dust and injurious gases are removed from the air, preventing damage to finish in plating, painting, precision grinding, and similar operations where process-generated or

other fumes and foreign matter cause trouble.

5. *Prevention of Static.* Usually more important in textile and chemical plants than in metalworking shops, this factor is nevertheless important in some cases. Static electricity sometimes causes difficulties with finish or assembly.

6. *Air Circulation.* Continuous air change speeds drying, prevents fume and moisture concentrations and "hot spots," makes it possible to put heat-treating, forging, and other "hot" operations actually in the production line rather than in a nearby separate shop or room, thus saving floorspace.

The closed structure necessary for good air conditioning also produces associated advantages, such as uniform lighting and noise control.

The following are just a few of the ways in which air conditioning improves worker health and comfort, thereby raising efficiency:

1. *Better health.* Respiratory diseases caused by pollens and dusts, and allergies, such as hay fever and asthma, are, of course, alleviated. Air conditioning also eliminates the excessive heat of summer days or localized high temperatures which overburdens the heart and reduces the ability of the blood stream to produce infection-fighting white blood cells. Whether it is effective in reducing the frequency of common colds is, however, a moot question.

2. *Increased efficiency.* In a recent survey, 94 per cent of executives queried said air conditioning increased employee efficiency, 77 per cent said it increased production, and 93 per cent said it reduced fatigue. In one Detroit drafting room, efficiency was increased 51.4 per cent.

3. *Increased Comfort.* Air conditioning can maintain comfortable working conditions for more than 90 per cent of the workers continuously, while an ideally designed ventilation system will provide comfort to only about 75 per cent for less than half the summer daytime hours. Thus air conditioning materially increases worker comfort.

In addition to those outlined, other advantages result from in-plant weather control:

1. *Reduced Cleaning Costs.* A Detroit firm reports that dust accumulation in air-conditioned spaces was about one-fourth of that in non-conditioned spaces. This cuts the cost of cleaning and maintenance by 39.7 per cent. Apparently, where standards are normally high (as in food processing), air conditioning would cut such costs little; where standards are lower, as in metalworking generally, such costs would be cut considerably. Dust-caused belt-gumming, gear and bearing wear, and electrical short circuits are prevented as well.

2. *Decreased Absenteeism.* General indications are that absenteeism declines 25 to 30 per cent when air conditioning is installed. While generally attributed to improvement in health, reduced absenteeism may result from the morale-raising value of such factors as pleasant working conditions in unpleasant weather, reduced bodily discomfort, and the like. At one company, 78 per cent of the supervisors felt morale was improved, 80 per cent felt jobs were more attractive, 57 per cent felt absenteeism was decreased, and 52 per cent felt turnover was decreased as a result of the air-conditioning installation.

3. *Increased Production.* Some engineers use the rough figure of 10 per cent loss in efficiency as a result of summer heat, 5 per cent loss as a result

of winter cold. A New York State commission, studying the temperature problem in heavy industries, found that production dropped 15 per cent when temperature was raised from 68 to 75° F., with relative humidity held at 50 per cent. When temperature was raised to 86° F., and relative humidity allowed to go up to 80 per cent, production dropped 28 per cent. With temperature and humidity constant, production dropped 9 per cent in stale air (23 to 66 parts CO_2 to 10,000 parts air).

Costs Comparisons. Controlled-conditions structures are usually cheaper to build than conventional buildings because costly window framing and roof venting and shaping are eliminated. Solid walls reduce exposure area and insulation is simple; for these reasons heating and refrigeration plants can be comparatively small. Cleaning and painting requirements are reduced, washing and replacing of windows eliminated, awnings, curtains, and shades are not needed, and areas for light shafts and courts need not be provided. All these are cost-savers.

Costs of air conditioning installation and maintenance would vary, of course, with size, design, and requirements of the individual plant. But it is of interest, perhaps, to note the cost experience of one large motor manufacturer.

The company spent $1,120,000 to condition a 1-million sq. ft. area, or $1.12 per sq. ft. Conditioning equipment cost $250 per ton. Of total cost, 20 per cent was for refrigeration, 29 per cent for air-handling systems, 20.4 per cent for sheet metal, 5.85 per cent for temperature control, 4.5 per cent for heat exchangers, cooling towers and circulating pumps, 6.85 per cent for water and steam systems, 2.15 per cent for pipe insulation, 0.52 per cent for instrumentation, 0.33 per cent for painting, and 10.4 per cent for installation, supervision, etc. Cost to be amortized over 20 years was $56,000 per year.

American Machinist, October 10, 1946, p. 117:5.

How Management Can Help in Conserving Industrial Raw Materials

INDUSTRIAL management is in a good spot for helping to conserve our natural resources, which have been seriously depleted by the war. It can help by simply doing something it should do anyway: reducing manufacturing costs. There will be more pressure to cut manufacturing costs in 1947 than there has been in many a year. Cost-cutting will be the Number 1 order of the day because of higher wages, less consumer buying, and sharper competition. Some of the means by which industry can promote conservation by reducing costs are:

1. *Reducing waste of raw materials during the production process.* This involves: (a) use of better quality control to reduce the number of rejects that are discarded or sent to the scrap heap; (b) use of the most efficient and accurate machinery, which again reduces scrap and rejects; and (c) more thorough training for the workers who operate the machinery.

2. *Standardizing parts and components wherever possible.* This can be done within products, within lines of products, within entire industries. Standardized parts mean less variety,

lower inventories. Lower inventories mean less spoilage, damage, and risk of obsolescence. They mean a smaller quantity of material is doing the job. Though these savings may be relatively small, everything counts.

3. *Better utilization of by-products.* This means stepping up research that may uncover uses for industrial wastes. The impressive list of products now derived from sawdust indicates the good work already done in this connection. Vastly more remains to be done. In spite of the utilization of sawdust, only ⅓ of the wood of a tree is now converted into useful products.

Lignin is a waste product of papermaking. Perfecting low-cost lignin plastics would greatly increase their use and give paper mills a valuable by-product from a valueless waste. It would also serve conservation by reducing stream pollution and, in some cases, by promoting substitution of material from a resource that grows—timber—for material from a resource whose quantity is fixed—metal ore.

4. *Challenging the methods of making products and even the fundamentals of product design.* It may be found, for instance, that parts made of steel stampings will do as good a job as parts made of iron castings—and at lower cost. A switch from one to the other will promote conservation. Since the stamping is lighter than the casting, you will be getting more product from a given tonnage of iron ore.

5. *Challenging the materials from which products are made.* Keep open-minded to alternates which, all things being equal, are more abundant. Current copper shortages have advanced the idea of using aluminum for wire instead of copper. However, ways must be found to utilize domestic aluminum ores which aren't practical sources of supply under the extractive methods now employed. Also, bronze can sometimes be replaced by stainless steel; metals, by plastics.

Wartime use of National Emergency steels saved untold quantities of strategic materials. This conservation can be continued if users of steel continue to specify NE steels in their buying. And it's conceivable that the same idea might be applied to other materials—the idea of cooperation among users of materials to develop, test, and accept new formulations lean in strategic materials to replace those rich in them. Working through trade associations is a made-to-order method of reaching this goal.

It must be remembered, however, that there is a big limitation on the cost approach to conservation. It is this: An engineer responsible to higher management and a higher management responsible to stockholders cannot be expected to take conservation measures in the realm of manufacturing operations and methods which do not ultimately pay off in costs and thus in profits. Conservation, then, must always be a secondary motive in these five areas of approach. Lower costs will always be the primary motive.

There are, however, areas in the broader realm of long-range profit, of company policy, and of industry-wide activity where industry can perform outstanding service in the cause of conservation. Here are some:

1. *Long-range research into economic methods of substituting lower-grade domestic ores for domestic ores now in use or for imported materials.* Research is now being carried on in the lower-grade iron ores of Minnesota, with both private firms and government agencies working on the problem.

2. *Supporting studies of new sources of materials.* This includes: (a) exploration for new sources of standard ores; and (b) research for developing processes that crack open entirely new sources of a material. For example, successful extraction of magnesium from seawater means we can finally cross magnesium off the list of materials of which we may run short.

3. *Company policy-makers can get behind government research,* where the expenses are too great, results too uncertain, or the outcome too far in the future for private research to tackle the job—for example, in the study of methods of extracting oil from shale, and experiments in converting coal into oil.

4. *Pressing for tax structures that not only permit conservation but actively encourage it.* Taxes that force the waste of resources should be eliminated. Taxes that reward those who conserve—those in the lumber industry, for instance, who practice selective cutting and reforestation—should be installed.

5. *Action aimed at tariff reduction or elimination on tariff-protected materials running short here but abundant elsewhere.* Like all blanket statements, this must be taken cautiously. We can't afford to kill a domestic industry that might be our sole active source of supply were foreign sources cut off. And a tariff may be a good thing where it protects an extracting industry working on ores boundless in quantity but reducible only at high cost. It is likely here, however, that *every* tariff-protected material will argue along that same line.

It should be noted that dependence on foreign sources for scarce materials has this by-product: We send dollars to foreign countries which they in turn can use to buy machinery, equipment, consumer goods—even the products made here from the imported raw materials.

6. *Supporting government measures that directly or indirectly serve the cause of conservation.* Intelligent stockpiling is a case in point. Even if it doesn't directly affect conservation, it makes us feel safer, thus providing a sounder base for long-range conservation planning.

7. *Encouraging technical training of youth to provide human resources with which to conserve our natural resources.* According to Dr. Vannevar Bush, our national deficit of science and technology students—as a result of the war—totals something like 150,000. By 1955, he estimates, our deficit of people with advanced degrees in such subjects will be 17,000. Granting technical scholarships to promising high school graduates is something every industry and many companies can do to help make up this serious shortage.

Why all the current anxiety over conservation of natural resources? There are two answers: (1) the war consumed so much of our store of resources; (2) we must have enough natural resources available to fight and win another war. This leads us to a fundamental fact that is all too often overlooked: The greatest possible service to the cause of conservation—the greatest service by a margin so wide that all the others are puny by comparison—is the prevention of war. Since the most effective way to prevent war is through World Government, industry has a vital stake in World Government and a vital reason for promoting it. This is the greatest single service industry and men of industry can render, not only in the cause of conservation, but for the benefit of all mankind.

From an address by Harwood F. Merrill before the American Society of Mechanical Engineers.

Practical Palletizing Pays Off

DURING the war there was not enough manpower, either military or civilian, to handle the staggering tonnages of military supplies through a long series of loading, unloading, piling and unpiling operations all the way from production lines to combat zones. To relieve this critical shortage of manpower, military service and supply organizations took over from industry the time-saving methods of handling materials on pallets with fork trucks.

The success of these pallet-handling methods is indicated from a U. S. Navy report which disclosed that a manually handled carload of loose cargo required 682 manhours to load, unload, and store along the supply lines from the contractor's shipping platforms to battle areas, whereas a palletized carload required only 203 manhours. Palletization reduced loading and unloading time as much as 85 per cent and, in a few spectacular instances, even more.

Savings vs. Costs. Undoubtedly, palletized shipments *can* result in large savings of loading and unloading time. But these savings must be weighed against added freight costs, the cost of returning pallets, and the cost of handling and servicing them.

Whenever pallets must be "deadheaded" to or from a destination point, the added cost of shipping and returning pallets may outweigh the other advantages of palletization. In a large number of instances, however, the savings made in handling will far offset the added cost of shipping on pallets and the return freight charges.

The conditions of each shipment differ with regards to the commodity shipped and distance of movement. But an average carload of merchandise will consist of from 32 to 48 unit loads with 4 rows in each end of the car, depending on whether loads are tiered two or three in height. This means the weight of 32 or 48 pallets is added to the freight bill *at the commodity rate.* So if the commodity rate comes to one cent per pound, the added cost would be from $25.60 to $38.40 with an 80-pound pallet.

If the pallets are to be returned, the return freight at "pallet" rate sometimes overbalances any savings made in loading and unloading time.

Dividends from Turn-Arounds. Shipping on pallets can be done most economically when a "turn-around" movement is developed. Exide, for instance, has a large movement of battery plates from Philadelphia to Chicago and a return movement of lead scrap from Chicago to Philadelphia.

A combination of outbound and inbound movements, or vice versa, with a short deadhead pallet move intervening, can also be worked out to advantage. When a manufacturer is shipping from his plant to a destination located a short distance from one of his sources of supply, in most cases it will be profitable to deadhead empty pallets from his destination to the supplier who then loads them with his product and ships them back to their originating point.

Light-Weight Pallets. The development of light-weight pallets has introduced a new note in palletized shipping. Aluminum pallets, for example, weigh approximately one-third as much as wood pallets and make practical the shipping of unit loads of light-weight goods that have a high freight rate. A 40 x 48-in. aluminum pallet

weighs approximately 36 pounds, as compared to 80 pounds for a wood pallet of the same size. The 44-pound freight saving per pallet on both outbound and return shipments results in an appreciable reduction in freight cost.

Only the conditions under which each shipment is made, however, can show whether the use of aluminum pallets is economical. Their current cost of approximately $26, as compared to $3.50 for a wood pallet, can be quickly offset in cases where the commodity rate is high and pallets are returned in carload lots.

Low-cost expendable pallets also have their place in palletized shipping, especially for light-weight, bulky loads such as light bulbs, tea, and tissue paper. Built up of impregnated paper, such pallets cost only 50 cents and weigh up to 15 pounds. Their load-carrying capacity is relatively low as compared to wood or metal pallets.

Pallet pools, the most commonly suggested solution to the problem of return, have merit, but also definite limitations. Small, local pools are now in existence. Formation of a large pallet pool requires considerable organization to carry on the operation. One of the major limitations of pools is that pallets will congregate at "slow" spots. It is at these spots that handling and redistribution may become a costly factor.

Another suggested solution for the redistribution of pallets is the stocking and leasing of pallets by jobbers. The pallets would then be considered interchangeable between jobbers and companies in various localities. This plan also would require a central organization to act as a clearing house, as otherwise it would be difficult to make workable.

Before pallet pools can be made to operate efficiently, pallets must be standardized. The Navy has standardized on the 48 x 48-in. pallet and has found it adaptable to an extremely wide variety of products by simply varying the unit load pattern on the pallet according to package size. For shipping batteries, Exide has found that a 40 x 48-in. pallet affords greatest flexibility in that it permits loading two across a freight car, the 48-in. way. Pallets 48 x 48 in. are not nearly so adaptable to truck shipping, as a closed-truck body will not receive two, side by side.

Other factors delaying wider adoption of palletized shipping are: non-standardization of handling equipment, lack of pallet-handling equipment in many plants, and low floor capacities that in some plants prohibit storage or moving of unit loads. These are minor factors which can and will be quickly solved once the major obstacles to profitable palletized shipments are removed.

And removed they shall be. Agitation for freight-rate reduction on pallets is making all segments of industry increasingly conscious of the time-and-cost-saving advantages of palletized shipping. This in turn will foster more demands for removal of the high "pallet rate" barrier.

American Machinist, November 21, 1946, p. 113:3.

• IN THE 90-YEAR PERIOD 1849-1939, investment per worker in American industry increased from $500 to $6,000; annual wages per worker arose from $248 to $1,150; and hours worked per week were reduced about 40 per cent. Ninety years ago the average worker had very little mechanical horse power to aid him; today approximately 6.4 horse power—more than 50 times the power of his own muscles—is at his disposal.

—Louis Ruthenburg at the Princeton University Bicentennial

Marketing Management

Functions of Marketing Research Departments

SELECTION of advertising media, executive training, sales forecasting, and introduction of new products are some of the diverse functions being performed by market research departments, according to a survey just completed by the Conference Board. The study, covering the marketing research activities of 154 firms, found market research departments increasingly regarded as "versatile tools" for management, with nearly 50 different broad work classifications falling within their scope. Among these, the investigators found market researchers particularly concerned with market analysis, estimating sales potential, studies of competition, and costs of distribution.

Budgeting Market Research. The survey revealed that the average budget of established marketing research departments is about three-tenths of 1 per cent (.3%) of total sales. In most cases, costs of market research are charged off either to sales administrative expense or general administrative overhead. Comparatively little money is spent for marketing research in relation to the amounts spent for production research. The publicity possibilities of research laboratories are considered a contributory factor in the disparity of budgets. The failure, also, to recognize the "insurance value" of market research and the importance of retaining a sound market are cited as other factors for this monetary under-support.

Executive Training. The survey points to the training of executives as another example of the versatility of marketing research departments. Since the departments are in constant touch with nearly every phase of the company's business, some firms have realized the value of the marketing research department as a training area for young executives. Men passing through the department can rapidly obtain a comprehensive knowledge of over-all company operations to an extent not possible in other departments. A number of companies report they have instituted plans whereby promising young executives are transferred to the marketing research department for training and orientation before being elevated to more responsible jobs. The trainee-executives gain a broader viewpoint and an appreciation of objective thinking. The department itself gains by constantly building up the number of executives sprinkled throughout the company who understand the functions and aims of market research.

New Product Introduction. Because of their proximity to "firing line" marketing conditions, market research departments are called upon to coordinate the various activities involved in putting new products or services on the market. In some cases, top priority is given the department in governing production, advertising, and sales policy. Constant checks on dealer and consumer reaction are maintained. When the product has firmly established itself, control is gradually

returned to the company's regular operating departments.

Salesmen and Market Research. One phase of the survey, devoted to an analysis of prevailing practices in the organization and operating of marketing research departments, showed that salesmen, though generally not considered good sources of market data, can obtain much valuable information at little cost—if they are properly instructed and supervised. The most satisfactory results are obtained, according to the survey, when the salesmen are requested to supply only a small amount of information at a time; when the requests for information are clear, simple, and easy to understand; and when the salesmen's interest is held through showing how the information they gather is used to their advantage.

What Kind of Dealer Helps Are Wanted?

THE most important point to remember in developing a program of dealer helps is to give the retailers what they want. Why not ask the retailer himself what sort of assistance he wants, and what he will be willing to pay for before developing a campaign? Generally speaking, however, he requires the following:

1. A selection of helps to choose from.
2. Materials that are timed for the seasonal angle. Retailing as a business is keyed to a series of seasonal promotions.
3. Materials that are priced within range of the average dealer, preferably a selection of materials that give him a price range from which to choose.
4. Promotion costs expressed in terms of how much business he will buy for the price.
5. Material that will match the personality of his store. Retailers often are out of character when they use the elaborate mailing pieces that some national advertisers make up for them.
6. Material that plays up the dealer, plays down the national advertiser.
7. Mailing material that is not so large or heavy as to cost extra postage.
8. Material that does not conflict with sectional tastes and customs.
9. On folders, envelope stuffers, etc., the retailer's name should appear in a prominent position.
10. Merchandise shown must be that in retailer's store.
11. On higher-priced items, there is no objection to showing complete line, despite the fact that retailer may not have all items. In this case the material would be used as sort of catalog of merchandise that could be ordered if not currently stocked in dealer's store.
12. Profit margin on merchandise featured must be favorable.
13. Installation costs must be at a minimum, or dealer helps should be installed at manufacturer's expense.
14. If possible, the material should help dealer cash in on national advertising through some form of tie-in.
15. Appearance that is pleasing and conducive to sales.
16. Utility of display which gives it a second advantage to the dealer.
17. If it has been pre-tested, dealer wants to know the details of test and results.

When dealer helps score high on these 17 factors, it is easy to persuade alert dealers to share in their cost. And when dealers do share in the cost, the manufacturer is able not only to make his budget stretch further but also to guarantee for himself proper use of material when it reaches point of sale.

—*Printers' Ink* 8/30/46

• STARTING SALARIES of salesmen (as surveyed by the Dartnell Corporation) rose to an average of $2,500 annually in 1946, surpassing their 1929 high by $100. Average earnings of all salesmen are now at an all-time high of $6,177 per year, compared with $3,872 in 1929.

Revising Your Sales Compensation Plan

UNLESS you have reappraised your sales compensation plan recently, chances are that it's out of step with the present needs of your business. During the period of lush wartime selling, a haphazard compensation plan, together with its high costs, may have commanded little serious attention. But not today. And, while the business tide is turning and competition stiffening, one factor in the sales picture remains constant: Good salesmen are still hard to find. All the more reason why sales compensation plans should be scrutinized now!

It is not the purpose of this article to recommend any specific plan or to discuss the relative merits of various plans. Each business situation requires a plan tailored to its specific needs. Here are, however, a series of steps to aid you as you go about the task of reappraisal and possible revision:

1. *Define the Salesman's Job.* To do this you must:

a. Define your sales objectives—by product lines; by sub-lines; by time periods; by market areas.
b. Formulate sales program.
c. Lay out sales territories.
d. Plan sales program.
e. Establish sales quotas.
f. Set up the selling expense budget.
g. Plan advertising and sales promotion.

On the basis of these seven, define just what it is that you want the individual salesman to do in his territory.

2. *Appraise Your Plan Against These Four Tests of Soundness:*

a. Does the compensation plan stimulate the salesmen to do the defined job?
b. Will the plan, applied to each territory, give the salesman fair and adequate take-home pay?
c. Is the plan equitable for the sales force as a whole and as between salesmen?
d. Is it economical? Can you reduce direct unit selling costs, or at least hold them in line, by using it? Can you afford at various volume levels the expense it entails?

3. *If Your Answer to Each of These Questions Is "Yes," Let the Plan Alone.* DON'T TOUCH IT.

4. *If Your Answer to One or More of Them is "No," You Have the Task of So Revising the Plan That You Can Answer Each of These Questions Affirmatively.*

In the task of revision, you have several elements of compensation to utilize:

1. Base Compensation—salary and drawing account.
2. Incentive Compensation—commission, bonus, profit sharing, prizes.
3. Expense Account.
4. Plus Factors.

The trick is to utilize the proper element or combination of elements to meet your special situation. To do this successfully you must bring to the problem these seven requisites of successful revisions:

a. Time—adequate to study the problem.
b. Experience—gained from working on similar problems.
c. Adequate data—accounting, statistical, and personnel.
d. Objectivity—consideration of the problem on its own merits.
e. Analytical ability.
f. Judgment.
g. Thoughtfulness—for the people involved.

The following are 10 addittional suggestions:

1. *Get Your Salesman's Ideas.* A substantial proportion of their grievances involve compensation. Ascertain what they want out of a sales job and would like in a compensation plan. Too often sales executives simply announce, "Here is the plan, let's get going on it." This is the very attitude that torpedoes salesman morale and turns them toward unionism.

2. *Tie Your Plan Into the General*

Compensation Structure of your Company. Much progress has been made in the last five years in the field of job evaluation and wage administration. Take advantage of it.

Factors used in evaluating jobs in other parts of a company, such as (1) working conditions; (2) responsibility for planning, contact, and independent action; (3) imagination and creative ability; and (4) knowledge, can be used in establishing the relative value of the salesman's position as compared to other positions.

3. *Keep an Eye on General Compensation Trends.* Gains in over-all compensation, and trends away from piecework and toward security in industry generally, will indicate to the wise sales executive the trends that should be represented in his new plan. Failure to give salesmen gains comparable to those of wage workers is an open invitation to trouble.

4. *Keep the Plan as Simple as Possible.*

5. *Pretest It Thoroughly.*

6. *Have a Ceiling on It.* Not to prevent high earnings, but to avoid windfalls.

7. If you have had distortions in your compensation plan, especially on the high side, you'll not cure them without serious difficulty and possible loss of personnel. Your objective is to minimize this as much as possible.

8. Make use of the *Plus Factors of Compensation.* These include vacations, transportation and other expense allowances, personnel benefits, a sound retirement program, and individual recognition—a non-financial incentive whose importance cannot be overestimated.

9. Remember that sales compensation is only one tool of sales management. It is not a substitute for management. Present trends place an increased requirement on the sales executive to sharpen up the other tools of sales management, to be close to his men, to put them on his team and to see that intermediate levels of supervision are trained and inspired to do likewise.

10. Provide for administration of the plan; and keep it flexibile enough to meet future changes in conditions.

In the final analysis, the question of how much your salesmen should be paid can be answered as follows: You should pay the amount of total compensation required to secure and hold the grade of sales talent you need. Within that total, the sales compensation plan you establish determines the way in which you pay it to get the salesman to do what you want him to do when you want him to do it.

From an address by James C. Olson before the Sales Executives Club, New York.

Price Forecast for 1947

THE consensus of Washington's economic seers is: (a) 1947 will be "the year prices went down"; (b) early 1947 strikes in major industries could start the nation into a tailspin with results comparable to the 1929-33 collapse. The experts do not agree on how much prices will sink or exactly when. The Bureau of Agricultural Economics predicts a rise in the parity price index from present level, 212 per cent of the 1909-14 average, to about 215 or 220 per cent, with a leveling off about mid-year and the start of a decline. The Bureau of Labor Statistics anticipates an earlier decline. A Federal Reserve Board official fears prices won't decline soon enough but will rise "until the market suddenly breaks," while a Commerce Department official expects no real price decline until production catches up with demand in the late Fall.

—*The Wall Street Journal* 12/26/46

Financial Management

The Present Status of Profit Sharing

IN recent years, and especially after the outbreak of World War II, profit sharing has been confronted with a number of practical difficulties which have served further to impair its already declining status in industry. These derived from publicity and governmental restraints on executive compensation, higher taxation, United States Treasury regulations, wage and salary stabilization, and the uncertainty of the attitude of the courts.

To determine the present status and probable future of profit sharing in America, a broad study of profit sharing, which included the examination of 209 profit-sharing plans in 151 companies, was recently conducted. The observed pattern is outlined in the following summary:

1. After a century and a quarter of trial and error, profit sharing is being used by a very small proportion of employers in all industrial countries.

2. It is a device of management that has been enthusiastically acclaimed by some advocates, many of whom have later abandoned their own plans.

3. Plans have been established from a variety of motives, some strictly business, some social, some anti-union, some concerned largely with providing higher incomes for company executives. The principal declared objectives of management are: to provide an incentive for increased production; to promote employee security; to advance the social status of the worker by making him a part owner of the business and a participant in its profits but not in its losses; and to improve employer-employee relations.

4. Probably at least 60 per cent of the plans for wage earners and between one-third and one-half of all plans established in the United States have been discontinued, many of them within a few years after their initiation, mainly because of apathy of employees or employer dissatisfaction with results.

5. The rate of establishment of plans, their rate of mortality, and the distribution to employees under such plans rise and fall with prosperity and depression.

6. Arbitrary cash bonus plans have declined in favor, and over the years plans that establish trust funds and provide for determination of the amount of profits to be shared and its allocation to employees by fixed formulas have gained in number.

7. Profit sharing through distribution of company stock has been adopted in only a minority of the plans. Because of employee dissatisfaction and management embarrassment in times of rapid decline in the stock market, this procedure, especially as regards wage earners, is now regarded with less favor than formerly.

8. Despite contrary statements of a minority of managements with profit-sharing experience, the preponderance of evidence is that profit sharing has made no substantial contribution to the improvement of employer-employee relations. Many plans have been terminated by strikes and employee demands for higher wage rates. Trade unions view such plans with suspicion as designed to discourage organization of labor and increases in wage rates. From the outset unions have been opposed to profit sharing and their position is still unchanged. Generally, when a union succeeds in organizing the employees of a profit-sharing estab-

lishment it demands that the bonus be included in the basic wage rates.

9. Some of the companies that assert their profit-sharing plans have been highly successful have no formal pension plans and tend to deprecate retirement systems as being of less value to employees than profit sharing. This position seems no longer tenable. The following comment of one employer, like that of many others, is significant of the trend of thinking on the subject among progressive company managements:

> Our management representatives look with disfavor upon any profit-sharing . . . plan primarily because of the possibility that anticipated benefits may decline or vanish entirely or even manifest themselves as actual losses to the participating employees. There is evidence to indicate that many employees are much more interested in acquiring a maximum of financial security than they are in participating in the business risks of the enterprise. For example, they are interested in pension plans because they promote a feeling of security, and that desire for security is so strong that many prefer a contributory pension plan with guaranteed benefits to a revocable non-contributory plan.

Profit sharing is making little or no progress by voluntary action of management and is not promoted by government or favored by unions. On the other hand, pension and other employee security legislation is almost universal in industrial countries. Company retirement systems are increasing rapidly in number and coverage and have a lower rate of mortality than profit sharing plans. Throughout the history of profit sharing there has been a considerable body of opinion that profits distributed to employees should be used largely, if not solely, for purposes of employee security. Many of the recent trusteed plans make such provision.

10. It seems significant that the first and also one of the latest American studies of profit sharing for wage earners both concluded that companies should ascertain that wage rates and employment conditions are on parity with those for similar employment in the community, establish good employee relations, and develop well-rounded personnel programs before establishing profit-sharing plans. The later study, issued by Industrial Relations Counselors, asserts that if profit sharing is feasible as a next step it might be used advantageously to strengthen the financial basis of employee security plans.

11. The experience with profit sharing for wage earners suggests that in the minority of companies able to afford it, the device should only be adopted to crown a good personnel program after management has properly discharged its primary responsibilities to the employees. If then adopted, a reserve fund should be created with the profit-sharing distributions and used to promote the long-range security of the employees who participate in the regular benefit program.

12. While profit-sharing cash bonus plans for executives avoid some of the difficulties that attend plans for wage earners and may have a proper place in the program of some companies, the considerable payments of profitable years will invite stockholder and public criticism disproportionate to the net increase in the individual executive's compensation after payment of income tax. Further, over any considerable period of service executives in most cases will derive a smaller net income from irregular bonus payments than they would from salary increases of the same total amount.

From *Profit Sharing and Stock Ownership for Wage Earners and Executives,* by Bryce M. Stewart and Walter J. Couper. Industrial Relations Counselors, Inc., New York, 1946.

Long-Range Forecasts of Operations

INDICATIVE of the policies of large companies with regard to long-range forecasts of operations are 40 replies received from a cross-section of firms in a survey among members of the Controllers Institute of America.

Only three of the respondents do not attempt to budget operations at all, while 37 prepare forecasts for periods ranging from three months to 10 years and longer. Of these latter, five are regularly preparing five-year forecasts; six are preparing forecasts for two or three years; 10 others have prepared five-year special forecasts, mainly for capital expenditures. The majority of the budgets are for a one-year period and range from the forecasting of sales only to complete operations.

Most controllers are thinking in terms of operations budgets as a tool for top management in the control of their companies and for determining long-range policies. Some few are skeptical of the possibility of long-range forecasting with any degree of assurance because of rapid changes in our economy. Those who are attempting to forecast over a reasonably long period admit they must change their sights as the target moves and revise their estimates. The majority recognize the worth of appraising future operations and requirements, particularly with respect to capital needs for plant and equipment and for long-term commitments.

The survey did not raise the controversial question as to budget revisions, but it is of interest to note that some of the budgets are revised "as often as necessary—two or three times a year" and others "every three months." In some instances, budgets are prepared for a full year and at the end of each month another month is added or at the end of every three months another quarter is added.

Some replies to the inquiry follow:

Five of the companies are preparing forecasts for five years or more.

EXAMPLE (Floor Coverings):

This company has used this management tool over the past 15 years and found it of definite value as a guide in making decisions on financing, production, and inventory control, and the timing of major maintenance and capital expansion programs. Normally these long-range forecasts cover periods of three to five years, and frequent revisions are necessary because of unforeseen changes in the national economy.

In making a long-range forecast, the heads of the sales division collaborate with the forecasting committee in estimating sales volumes by commodities. The committee consists of the controller, the economist, the treasurer, and the supervisor of the production planning department. After the sales volumes have been determined, the factory cost of sales, selling and administrative expenses are developed by commodity groupings with the help of the production, engineering, and administrative departments. The forecast for the company as a whole is then formulated by summarizing these findings.

We have just completed a five-year forecast of sales and profits which has been developed on the basis of two assumptions. The first assumes a continuing growth in the present high volume business to be broken by sharp recession in 1950. The second assumption is that the present volume of business will be broken by a short recession in 1948 followed by a continuation of high volume business through 1950.

Ten of the companies have prepared five-year special forecasts for financing capital expenditures and the postwar change-over period.

EXAMPLE (Optical):

We operate on a complete annual budget plan for our parent company, our five affiliated manufacturing and wholesale distributing companies (involving over

200 branches in the United States) and also our Canadian, South American, and London companies. Beyond these annual forecasts and operating budgets, we make long-range sales forecasts for each main product class which we call our normal product trend of growth. This trend remains intact for many years, except for adjustments, when necessary, for any major new product within the line or for any major elimination of product. Our branch trend of growth also remains for many years and is only adjusted when nearby branches are added or eliminated which may affect the trend of the individual branch involved.

Long-term projection for products is essential to good plant planning. Otherwise, plant planning from year to year creates large moving expenses and often loss of invested capital. In other words, if a plant is arranged on a 1937-1939 sales volume of $5,000,000 and no provision is made, for example, for a 10 per cent trend of growth per year which in 10 years would create a business of $10,000,000, the company will find it will be arranging its plant and facilities many times because it did not look forward to an either upward or downward trend of growth by product.

Our normal sales trends of growth, for instance through 1950, are all completely summarized. All accounts entering into the profit and loss statement are projected, including number of people required at each level with certain deviations allowed for possible changes in wage rates. Please understand that we are not attempting to estimate the level of the business index in 1948, 1950, or 1955. We are merely projecting business at normal which we then adjust from year to year on the basis of the business forecast we make annually for one year in advance.

Six of the companies are developing forecasts for two or three years.

EXAMPLE (Electrical Instruments):

We are now forecasting 15 months ahead by a running revision, i.e., dropping the last month just closed and adding the future subsequent month. Thus far this has worked out very well and has aided our factory in a program for reduction of salable items.

We hope to extend the long-range forecast to two years but have not as yet considered anything as long as a five-year period.

Replies from some of the companies preparing forecasts for various periods:

EXAMPLE 1 (Farm Machinery and Equipment):

Business today must constantly work on forecasts. We make forecasts of sales volume, profits, cash balances, receivable balances, investments, inventories, and such. These forecasts may be for a comparatively short period, such as one or two quarters, or for a period of several years. One of the longest forecasts we have made is that pertaining to our postwar volume of business. The primary purpose of this estimate was to determine the productive capacity needed and the extent of the plant expansion program required to meet sales demands. In making this forecast, we were concerned not so much with the sales possibilities immediately following the war, but more particularly with the normal postwar possibilities after this "flush" demand had been completed.

EXAMPLE 2 (Chemicals):

It has been our practice for many years to prepare, quarterly, a forecast of earnings and a forecast of cash position for one year in advance. The data is assembled on both a calendar year and a forecast year basis. For example, at June 30, 1946, we combine six months actual with six months forecast to obtain calendar year 1946—in addition, we have full 12 months forecast for period ending June 30, 1947.

From time to time we have had occasion to prepare special "long-range" forecasts. In the latter part of 1945, we prepared a forecast of earnings and a forecast of cash position for the three-year period ending December 31, 1948. At the present time, we are engaged in revising this forecast and projecting the figures through 1949.

Generally we have found that our quarterly forecasting experience, gained over an extended span of years, has proved extremely helpful in preparing *special* "long-range" forecasts. We consider such forecasts valuable in determining management policies provided, of course, appropriate revisions are made as conditions warrant.

EXAMPLE 3 (Radios and Refrigerators):

We work on an annual forecast and revise this quarterly. Our current plans

are to add three months to the forecast each time it is revised so that at all times we have a forecast 12 months ahead of us, regardless of our calendar or fiscal year.

We prefer to prepare a forecast that can be relied upon for commitment purposes 12 months hence, and confine long-range planning, such as five years, to specific expansion programs or changes, the reasons for which are indicated sufficiently in advance on the basis of a 12-month forecast.

By Louis W. Jaeger. *The Controller,* September, 1946, p. 503:5.

Stockholders' Approval of Employee Benefit Plans

A QUESTION that often arises in the formulation of pension, profit-sharing, or stock bonus plans is whether they must be approved by the stockholders of the employer corporations before they can be put into effect.

It may be said that a plan for deferred compensation of employees that is reasonable in character can be put into operation by the authority of the directors alone and, as in the case of any other form of wages or compensation, does not have to be approved by stockholders. There are two important exceptions to this general rule, however.

The first is that a stockholders' vote may be required by the certificate of incorporation, the by-laws, or by the statutes of the state where the corporation was organized. Where this requirement exists, care should be taken to see that the charter, by-law, or statutory provision has been strictly complied with. Otherwise a stockholder may claim at a later time that the plan is void, that it should be enjoined, and that all funds expended for it by the corporation must be returned to the corporation.

The second situation where stockholders' approval should be obtained is where employees of the corporation who are directors are to participate in the plan. In this sort of case, it is prudent to submit the plan to stockholders for their approval or ratification. If this is not done, the courts in most jurisdictions are inclined, at the instance of a stockholder, to scrutinize the plan critically and to place on the directors the burden of proving that it is reasonable. If they cannot sustain that burden, the plan as a whole may not be upheld.

Generally speaking, it makes no difference, in cases where interested directors are involved, whether the plan is approved by the stockholders before it is established or is ratified by them afterward, though it is usually preferable to submit the plan before it is put into effect.

—Louis B. Warren in *Central Hanover Pension Bulletin* 10/46

AMA FINANCIAL MANAGEMENT CONFERENCE

A Conference of the Financial Management Division of the American Management Association will be held on Wednesday and Thursday, February 5 and 6, 1947, at the Hotel Commodore, New York City.

Insurance

Marine Insurance Faces War's Aftermath

"THE widespread prevalence of theft and pilferage and of strikes and labor disturbances, with the consequent disorganization of transportation facilities and congestion on docks and piers, has forcibly brought to the attention of the insuring public the question of the measure of protection afforded by marine insurance policies against the delays and perils incident to the present unsettled conditions." The foregoing paragraph could have been written today, so aptly does it describe present chaotic conditions in marine insurance. The fact of the matter is that it was written at the close of World War I. The aftermath of this war, however, has produced even more widespread damage and destruction in many ports throughout the world.

As to war risk itself, the hazard of floating mines remains and will probably continue for several years. There has been a number of such losses recently in Italian waters and previously along the European-Atlantic and the Chinese coasts. Approximately 65 vessels have been damaged by mines since the termination of hostilities. In the four-year period immediately following World War I, 384 were reported sunk or missing as a result of mine action. This amply justifies the continuance of war coverage. War rates have been reduced substantially in the past 12 months and in many trades have now reached a minimum level.

Among the factors contributing to high losses are: the tremendous increase of pilferage throughout the world; the insufficient packing used by shippers; the congestion and improper handling of cargo in many ports; strikes of longshoremen and seamen; and especially bad situations at such points as Manila, Shanghai and Iran.

Among insurance experts the high rate of pilferage was to some extent expected, since World War I had produced abundant proof that the ravages of war were not entirely on the battlefield. No longer were property rights respected, but many people, both here and abroad, felt that they were entitled to a portion of the goods which passed through their hands. Currently this has been particularly true in connection with scarce and rationed items.

Almost no place in the world has been free of pilferage, and the Port of New York is by no means an exception. In this city an organization known as the Committee for the Suppression of Theft and Pilferage, originally formed in 1920 to combat this hazard, has been revived and is now functioning as the representative of ocean, harbor, and land carriers, cargo owners, underwriters, bankers, and all others concerned with the transportation of merchandise.

A very disturbing factor has been the laxity of the courts in releasing culprits on insufficient bail or, in many cases, without adequate punishment. The committee will endeavor to give support to law enforcement agencies so that proper convictions may be obtained. It is also expected that this committee will work closely with federal authorities to coordinate the anti-crime drive along

the waterfront in other parts of the country.

Often in recent months packages of considerable value have been stolen or the entire contents of a package have been removed and worthless material substituted. This has been true, in the first instance, of the Puerto Rican trade and, in the second instance, of the linen importations from England. It is apparent from the frequency of these losses and the expertness of the thieves that well-organized gangs are at work and through connivance, intimidation, and bribery have been supplying a flourishing black market.

The theft and pilferage problem has been intensified by some of the packing practices of export shippers. Almost every report from surveying agents in foreign ports mentions the lack of sufficient packing as the major contributing factor to the theft. During the War, because of the shortage of lumber and other materials, it was necessary to use substitutes—such as cardboard containers designed for domestic trade—and many exporters have continued to use packing materials which do not stand up in overseas handling. Merchandise so packed can rather easily be extracted from the package and, further, is susceptible to the risk of crushing when stowed under heavy cargo. Ship's sweat and excessive atmospheric moisture often cause disintegration of a package and loss of contents. Wooden cases are now becoming available and cartons especially designed for export use are coming on the market. These may cut losses.

Another factor that has been of considerable aid to the light-fingered is some manufacturers practice of plainly marking on the outside of packages their own names and descriptions of the contents. Some shippers consider this a valuable advertising medium, but its greatest value accrues to pilferers. Others labor under the mistaken impression that such marking is required by the customs of the receiving country. This is not true, however, and underwriters are endeavoring by means of packing inspections by qualified surveyors to correct this situation.

The widespread bombings of the war raised havoc with many ports in Europe and the Far East. Wharves, pier installation, cranes, lighters, warehouses, trucks, and connecting railroads were destroyed or damaged. It will require years to restore some of them. Even at such locations as South Africa and South America—remote from the war's actual impact—the facilities for moving cargoes in and out of the country have been so overburdened and repairs and replacements so neglected as to seriously congest the transportation process.

The result has been a constant slowdown of transit and considerable concentration of material in spots where adequate protection is not available. Cargoes are stored in the open at the mercy of the elements and often are inadequately guarded. Delays have been further aggravated by the general lack of experienced longshoremen. Thus it is not unusual for dozens of vessels to accumulate at port before their cargoes can be unloaded.

These unsettled conditions throughout the world explain the necessity for continuance of fairly substantial rates for the protection afforded by the Marine Extension Clauses. These clauses were introduced into the marine policy in 1943 to meet the increased perils of navigation arising from the war, to provide automatic protection against

deviation and delay, and various other risks. Until a greater degree of normalcy in foreign trade returns, it will be necessary to retain the Marine Extension Clause at additional rates in order to protect against these increased risks.

By W. Irving Plitt. *The Eastern Underwriter,* December 13, 1946, p. 55:2.

The Social Security Program Completes Its First Decade

THE end of 1946 will bring to approximately 8,200,000 wage and salary earners in the United States the lifetime guarantee of protection for themselves and their families under the old-age and survivors insurance program of the Social Security Administration, according to a recent report by Arthur J. Altmeyer, Commissioner for Social Security.

This is the first year in which it has been possible for such a large body of workers to achieve permanently insured status under the program inaugurated January 1, 1937. These permanently insured employees will have at least minimum insurance protection for life, regardless of their future work history, though the benefit amounts of those now under 65 will depend to a great degree upon their future employment in occupations covered by the Social Security Act.

Work in commerce and industry in 1946 brought old-age and survivors insurance protection to 1,700,000 additional workers, bringing the total of fully insured persons under the Act to approximately 35,500,000 by the end of the year.

A worker is considered permanently insured when he has spent roughly half his working lifetime after 1936, or at least 10 years, in employment covered by the Social Security Act. And fully insured status is computed only on the basis of the years up to age 65. When he reaches 65 and retires, a fully insured person may qualify himself and his family for monthly benefits, and on his death at any age qualified members of his family may file their claims and receive monthly benefits.

The total number of persons receiving monthly benefit payments increased during 1946 by 367,000—from 1,288,000 on December 31, 1945 to an estimated 1,655,000 at the end of December, 1946. The amount of the monthly payments increased by about $7,560,000 in the same period—from $23,801,000 to an estimated $31,360,000.

Making Safety a Habit Is Aim of New Program

"MAKE Safety a Habit" is the title of Beech Aircraft Corporation's new safety program, which involves inspections of various departments to see whether necessary safety precautions are observed. The crew chief and his members are judged on seven major points, with a possible score of 100. To be eligible for the final drawing for a prize, they must have a score of 75.

Two points are checked directly back to the crew chief. On one, his crew members are asked if their chief insisted on the use of company-supplied protective equipment. On the other, the crew is questioned on the safety instruction they have been given by the crew chief, including the induction of new members, follow-up instruction with old members, and regular safety meetings.

Other points on which inspections are made are: equipment and tool condition; housekeeping; accidents within 90 days which could have been prevented by use of equipment or by following safety rules; other accidents; method of work; wearing apparel, including safety or proper work shoes, jewelry, sleeves, hair covering, and neckties.

At the end of a recent inspection, Crew Chief I. I. Purenton was awarded a wool blanket for the record made in Department 05.

—*Supervision* 11/46

The Profitless Prosperity in Fire Insurance

IF, like many people, you have recently been forced to increase your fire insurance coverage 20 to 60 per cent to protect rising property values, it will probably not surprise you to learn that there is a nice little boom in fire insurance premium payments riding in the wake of the real estate boom. Last year stock fire insurance companies, which account for 85 per cent of the business, took in $660 million in fire premium payments as compared with $448 million in 1939; and this year they expect to collect close to $800 million. Yet, despite this big premium take insurance companies are talking ominously about losing money.

As might be expected, they are worried chiefly about fires. During the middle 30's less than $300 million annually went up in smoke, but during the war fire losses rose to more than $400 million a year; and this year the figure may exceed $600 million—a national four-alarm conflagration. There was a similar though less precipitous rise in the burning rate after World War I, and experts attribute it to "war weariness," plus lack of adequate preventive maintenance, fire equipment, and trained personnel. Last year, for example, the insurance companies had to pay out 53 cents on every dollar of premium revenue to meet fire losses. Under what the industry considers ideal circumstances, the cost of reimbursing for insured losses should be only 45 cents, leaving 50 cents for commissions, expenses, and reserves—and a nickel for profits. Since commissions are very difficult to adjust, the underwriters themselves absorb the effect of a high loss ratio, and in the last year they chalked up an underwriting loss of just 1.3 per cent of their fire insurance business.

The obvious solution would seem to be to raise premium rates, but these are usually (and in some states by law) based on the experience of the preceding five years. Current rates, which are at an all-time low average of 58 cents per $100 of insured value, reflect the extremely low loss ratio of the mid-30's when, despite a low volume of business, the underwriters earned a juicy profit of around 10 per cent. Some rate increases may be authorized next year by state insurance commissioners, but the underwriters refrain from clamoring for rate boosts for two reasons. The first is fear of federal regulation. The second and more important reason is that they haven't lost any money—yet. Thanks to their high investment earnings, the leading companies have all been able to pay normal dividends in each of the last three bad years. Last year, for instance, stock fire and marine insurance companies, which are always grouped together for statistical purposes, earned close to $100 million on their investments alone and reported capital gains of over a quarter of a billion dollars. Total net earnings were 3.5 per cent. Since about half of fire insurance company investments are in commercial securities, however, their present investment prospects are not too rosy, and the inveterate pessimism of insurance men may be justified this time —fire insurance may really be having a "boom in losses."

Fortune, December, 1946, p. 183:1.

• STRIKERS DON'T COLLECT—According to the Social Security Administration, only four states provide for the payment of unemployment compensation to strikers.

—*Management Information* 12/16/46

Special Study Section

Administrative Control of Branch Plant Operations

By John L. Brennan
ATF, Inc.

IT is generally agreed that the war has accelerated the growth of branch plant operations. Subcontracting has opened new vistas for a large group of manufacturers. Constantly changing military demands taught industry that there are no insurmountable obstacles to product diversification. Current cheap money rates have emboldened many companies to expand and strike out on new ventures.

Firms which prior to the war avoided large-scale operations in the belief they were unwieldy and too great a financial risk have now done an about-face. Some are enlarging their present lines; others are adding entirely new products; a third group is purchasing either a controlling interest in or the entire assets of other companies. None of these is expanding simply because it is the vogue; all are finding that size is a natural concomitant when an organization tries to diversify its products and lines in order to minimize cyclical fluctuations in demand.

Out of this trend toward bigness there has developed another trend, that of the establishment of branch or so-called subsidiary or associate plants. There are many reasons for this. The factor of size itself, the growth of labor unions, and various financial, geographic, and functional motives impel management to seek the most scientific method of coordinating ever-expanding operations. However, probably one of the primary reasons underlying the branch plant movement is the publicity given the policies of some major corporations that have found it both feasible and desirable to decentralize. Many of these large organizations have learned the hard way, having followed for many years before the war the policy of dispersing most of their operations in smaller plants throughout the country.

However, if all one had to do to achieve success in large-scale business enterprise was to subdivide the operations, as sound judgment dictated, into branches, success would come easy. Such a move involves myriad problems and organizational controls, and the types of controls and the manner in which they are administered can be the direct cause of success or failure. Let us discuss them generally, and then observe how one company applies them in its branch plant operations.

CENTRALIZED vs. DECENTRALIZED CONTROLS

The first question to be decided is whether the administrative control of the branch plants is to be centralized or decentralized. No generalization will cover all cases. In some instances, to centralize control would be folly; by the same token, it would be disastrous in other organizations to decentralize the administrative controls. Each company must be considered in the light of its own peculiar circumstances and organizational setup.

In certain cases the management might justifiably have no qualms whatsoever in delegating complete authority

and responsibility to the heads of the branch plants, making them accountable solely for results. Such organizations presumably would have highly experienced branch executives, or else they would possess the financial resources to withstand losses due to errors of judgment. There is, of course, much to be gained where decentralized controls can be instituted. The branch plant executive will be put on his mettle; he will either "sink or swim," and the company will have developed a capable administrator or it will have discovered a misfit. The result can be costly, but the gamble has proved well worth the risk involved to many progressive organizations.

Centralization of control may be imperative, at least temporarily, in some concerns—for example, where the organization is financially over-expanded, and cannot take the risk of delegating wide authority to an unseasoned executive until he fully demonstrates his capacities.

Again, centralized control may be necessary because of one man—the big boss. His dynamic leadership and personality may have submerged all other potential administrators to the point where they hesitate to make any decision, no matter how trivial, without consulting him. In such cases the chief executive usually has developed and nurtured the business, and unwittingly has held close rein for many years. Though operations have expanded considerably during this period, the chief is imbued with the belief that he must be aware of *all* that takes place in *his* company and that none but he can direct the business intelligently. There is nothing diabolical or unusual in such a managerial concept. The company had developed naturally and unspectacularly, and the boss thought all along that he was nursing a baby when in reality the infant had matured to manhood. Obviously it takes a little time for such a situation to right itself, but as authority is gradually relinquished to key executives they will gain confidence and become more capable of assuming over-all control of their subdivisions.

TO WHOM SHOULD BRANCH MANAGERS REPORT?

Once it has been decided whether to centralize or decentralize control, the most effective means by which that control can be exercised should be considered. In other words, where should authority be vested to question branch managers about their stewardships? Should the man or men to whom these executives report be members of the line, staff, or functional groups, or a combination of these?

Line control is exercised where the president or general manager of a subsidiary or branch reports directly to the president of the parent company, or the chairman of the board of the subsidiary company. *Staff* control exists when the officers of the parent or holding company exercise no authority or restraint over the operating heads of the branches or subsidiaries, but act only in a consultative or advisory capacity. The operating chiefs report directly to the president of the parent company.

As an example of *functional* control, the works manager of a branch or subsidiary may report directly to the vice-president in charge of manufacturing of the parent company insofar as manufacturing operations are concerned. Or the personnel director of a branch may report directly on personnel functions to the parent company's vice-president

in charge of industrial relations. Both these men, the works manager and the personnel director, report to two individuals: their respective functional superior and the operating chief of their division or branch. The latter has line control, while the functional chief exercises functional control.

Whatever type or combination of controls is employed must be clearly defined and the choice should be justified by the facts of the situation. Again, the only answer to the question of which kind of control is most effective is "It all depends."

Even when we have gone thus far in our organizational alignment, we have yet to determine how many and what specific controls should be used. Is it wiser to install a multiplicity of controls to be sure we have omitted no essential one? Or should we keep controls to a minimum so as not to stifle operating managers with them? The best way to achieve that elusive "happy medium" is to analyze the particular enterprise to determine both the types and quantity of controls needed. All companies are in business to make a profit. But many managements are realizing more acutely each day that they have a pregnant second duty to fulfill if they want to maintain public good-will and sound competitive positions: that of displaying a realistic, but not opportunistic, sense of social responsibility in the administration of their businesses. Thus any key controls, while revolving around the goal of earning a reasonable return on the investment in the enterprise, should reflect keen awareness of the social, political, and economic implications of each action of management.

ORGANIZATIONAL STRUCTURE OF COMPANY X

Let us see how some of these organizational concepts are applied in Company X.

The management objectives of this firm are not radically different from those of other progressive organizations. These objectives, as formalized by the management, are cited here in the belief that they reflect somewhat the reason for the type of organizational structure found in this company:

Management Objectives

To provide useful and needed products of high quality at competitive prices.

To increase our productivity and thereby improve the earnings and job security of our employees.

To earn a return on the stockholders' investment at least equal to that of companies in industries where the risk is comparable.

To maintain relationships with our suppliers that will help them, as well as ourselves, to grow and prosper.

To stimulate scientific endeavor and utilize the methods of research to improve our present products and create new ones.

To be good neighbors in our local communities and to be good citizens through helping to serve the nation's best interests.

Company X has realized that rapid and diversified growth may easily involve top-heavy management and loss of effective control. These dangers are being obviated through decentralized operating responsibility and centralized policy control. Each separate operating company's board of directors comprises its principal executives and representative executives of the parent or holding company referred to as "the staff." This small top management or staff group operates with a minimum of

overhead, coordinates basic policies, and makes possible immediate action when necessary. In addition, it offers specific, detailed help when required on finance, manufacturing, sales, engineering, planning and performance, administration, and human relations. Within general policy limits, each operating company is responsible for its own self-government. The holding or parent company engages in no productive operations, being merely a coordinating or control group. The organization chart of Company X (see following page) provides an over-all portrayal of the company's structure.

SINGLE LINE OF AUTHORITY

It will be noted that there is both line and staff control over the branch plants. Practically speaking, however, the control is solely line, since the staff are specialists in their respective fields and serve as assistants to the president of the parent company. The staff has no authority over the operating chiefs of the branches or their subordinates. If any member of the staff believes a plant should adopt a specific system or discontinue a certain practice, he must present his views, supported by facts, to the president of the parent company. The head of the branch plant has an opportunity to refute the staff member's statements and to submit his views to the president. Most of these discussions take place in operating committee meetings, and the president then decides which course to follow.

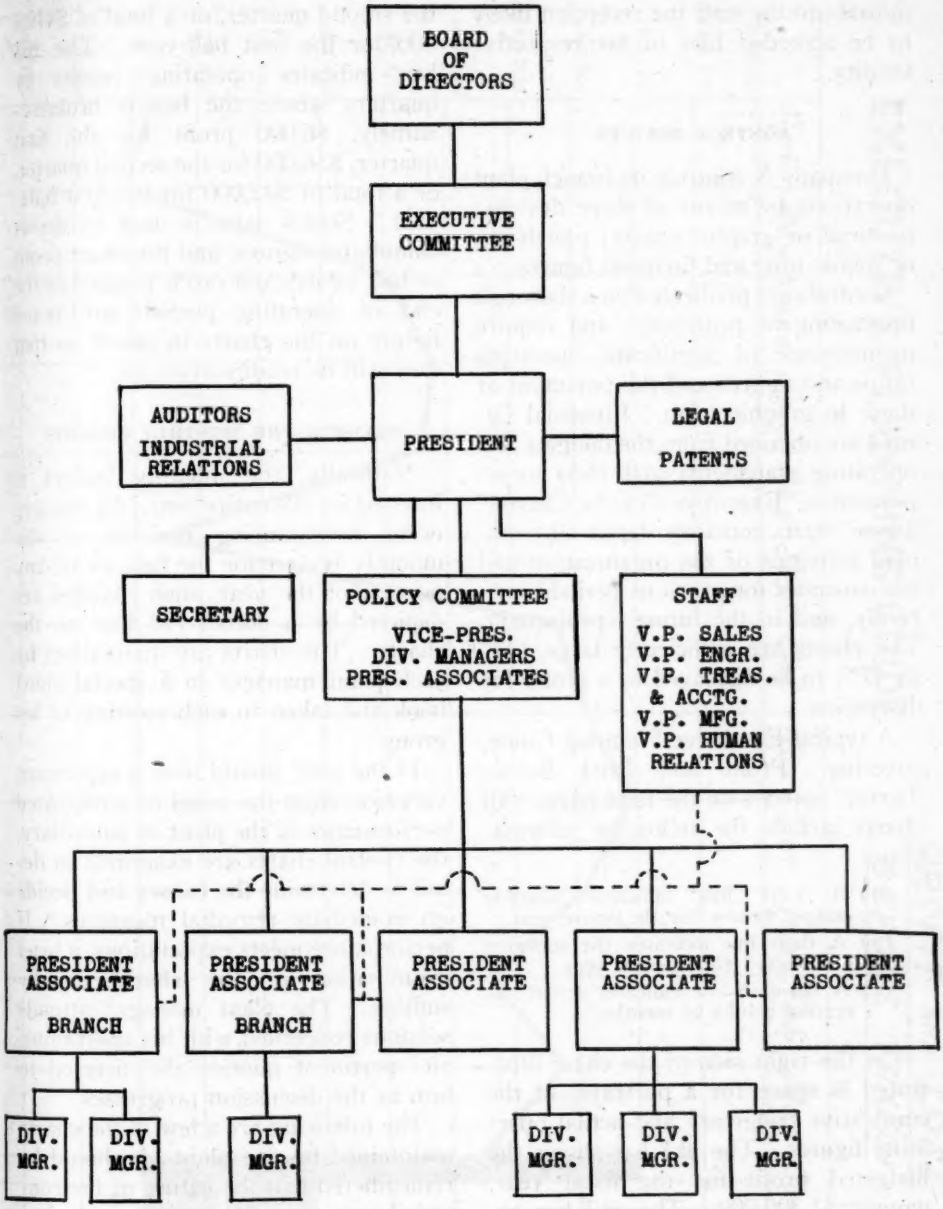
In this way one unbroken line of authority is maintained. There is no confusion as to who is boss or what are the authority and responsibilities of any executive. The president is enabled to obtain an intelligible, comprehensive picture of the facts surrounding any issue before he acts. Other staff members as well as subordinates in the branch plant organization are given equal opportunity to make known their feelings on all questions affecting the company and the plant.

Such a procedure helps prevent hasty and arbitrary decisions. Furthermore, it fosters the development of executive talent, for the branch plant manager has full authority and does not have to ask "teacher" before he acts.

Resentment is frequently aroused among supervisory and executive staffs when a policy or procedure is promulgated from the "front office" without warning. Company X's system gives those in key positions, who would resent high-handed actions by top management, their day in court. They "blow off steam" and, while the ultimate decision may be against them, feel better because they are recognized.

IMPROVING COMMUNITY RELATIONS

Many branch managers do a notoriously poor job of selling themselves and their plant results to the local communities. The meetings at Company X, however, put all branch or associate managers "on the spot," and their shortcomings in this respect are magnified under the keen observation of the staff. Since one of the plant manager's primary responsibilities in this organization is to maintain sound community relations, "stage fright" or false modesty is pointed out by the staff. There are no specific controls on public relations, but the branch manager's personality, enthusiasm, unselfishness, willingness to consider the other person's viewpoint, and ability to express himself intelligently and with assurance


BOARD OF DIRECTORS
EXECUTIVE COMMITTEE
AUDITORS
INDUSTRIAL RELATIONS
PRESIDENT
LEGAL
PATENTS
SECRETARY
POLICY COMMITTEE
VICE-PRES.
DIV. MANAGERS
PRES. ASSOCIATES
STAFF
V.P. SALES
V.P. ENGR.
V.P. TREAS. & ACCTG.
V.P. MFG.
V.P. HUMAN RELATIONS
PRESIDENT ASSOCIATE
BRANCH
PRESIDENT ASSOCIATE
BRANCH
PRESIDENT ASSOCIATE
PRESIDENT ASSOCIATE
PRESIDENT ASSOCIATE
DIV. MGR.
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indicate to the staff the reception likely to be accorded him in his respective locality.

CONTROL DEVICES

Company X controls its branch plant operations by means of three devices: pictorial or graphic charts; punch-ups or follow-ups; and financial figures.

Controls are predicated on a thorough forecasting or projection, and require maintenance of significant operating ratios and figures and the portrayal of these in graphic form. Financial figures are obtained from the budgets and operating statements and then incorporated in "Executive Control Charts." These charts concisely depict all pertinent activities of the organization and its associates for previous periods, currently, and in the future (projected). The charts are sufficiently large (11" by 17") to be displayed to a group for discussion.

A typical Executive Planning Guide, covering "Profit and Loss Before Taxes," appears on the next page. All charts include the following information:

(a) A solid line indicates monthly budget figures for the entire year.
(b) A dash line indicates the standard or "bogey" for the full year.
(c) A dot-dash line indicates actual operating results by months.

On the right side of the chart illustrated is space for a portrayal of the cumulative budgetary and actual operating figures. The #1 bar shows the budgeted profit for the fiscal year, namely $1,200,000. The #2 bar reflects the cumulative budget, subdivided by quarters where the bar is broken—namely, $160,000 for the first three months of the fiscal year, $250,000 for the second quarter, or a total of $410,000 for the first half-year. The #3 bar indicates operating results by quarters where the bar is broken—namely, $6,000 profit for the first quarter, $36,000 for the second quarter, or a total of $42,000 for the first half-year. Scotch tape is used to depict cumulative figures, and the exact profit or loss figures and ratios reached at the end of operating periods are noted lightly on the charts in pencil so that they will be readily available.

REVISING THE MONTHLY BUDGETS

Naturally, the monthly budget is forecast for the entire year. As changes occur necessitating revision of the monthly budget for the balance of any portion of the year, such changes are depicted by a dotted red line on the charts. The charts are maintained by each plant manager in a special chart book and taken to each meeting of his group.

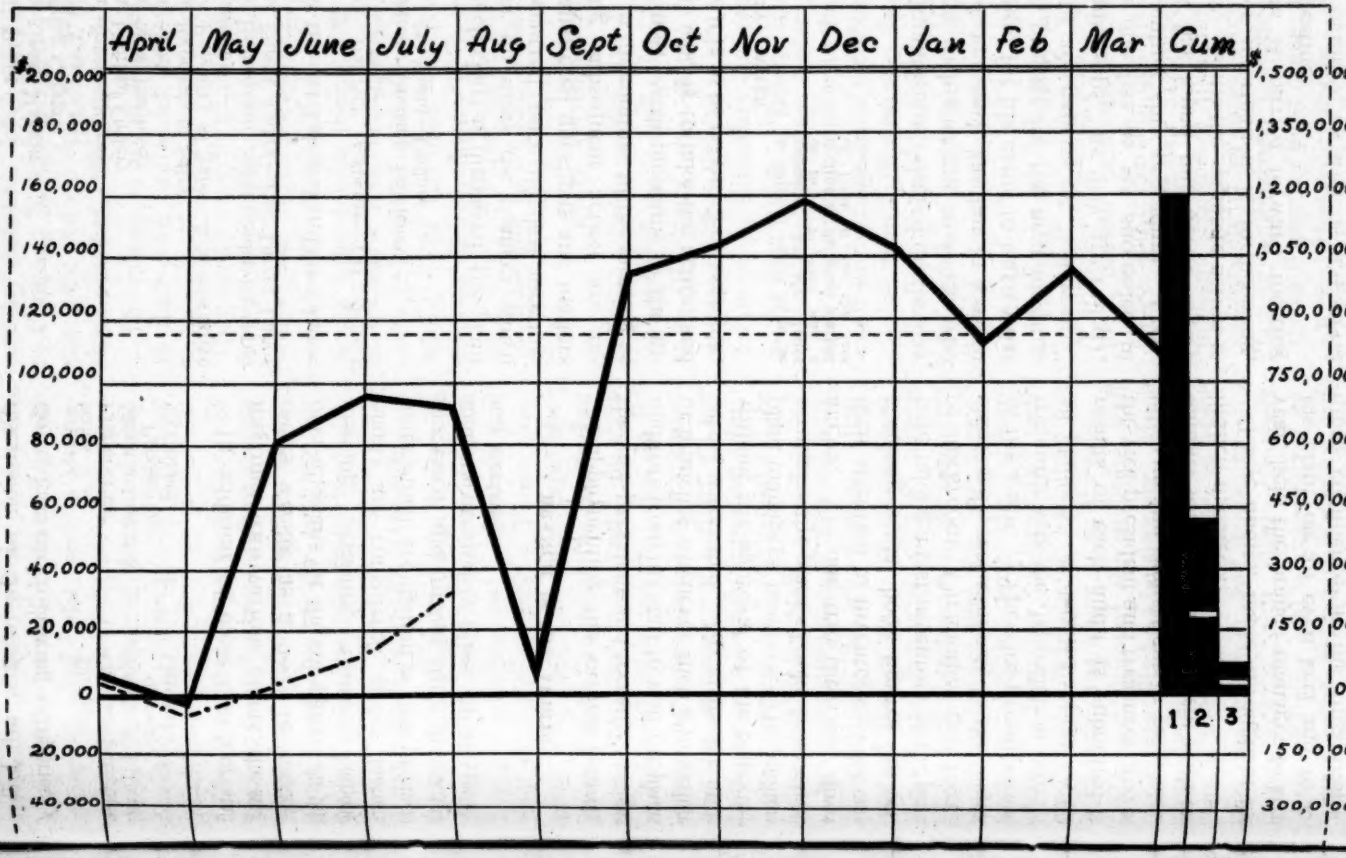
If the staff should note a significant variation from the usual or anticipated performance of the plant or subsidiary, the control charts are examined in detail to determine the causes and decide on immediate remedial measures. If performance meets expectations, a brief examination of the charts usually suffices. The plant manager attends sessions concerned with his operations, and pertinent queries are directed to him as the discussion progresses.

The following are a few of the charts maintained by one plant (it should be remembered that the nature of the control charts generally varies according to the type of business engaged in by each subsidiary):

Profit & Loss Before Taxes and Reconversion

EXECUTIVE·PLANNING·GUIDE

PROFIT AND LOSS BEFORE TAXES·



Gross Profit
Total Gross Margin
Working Capital
Fixed Assets—Net
Total Inventory—Net
Total Unfilled Orders
Total New Business
Total Sales
Ratio Expenses to Sales
Ratio Expenses to Sales—Administrative Expense
Ratio Expenses to Sales—Sales Research
Total Direct Labor—Per Direct Labor Hour
Total Indirect Labor—Per Direct Labor Hour
Total Indirect Expense—Per Direct Labor Hour
Machinery Division Efficiency
Total Overhead—Dollars

As each chart is displayed, the plant manager discusses the changes which have occurred since the last meeting. All unanswered questions and matters requiring subsequent action are recorded in the minutes of the meeting as "follow-ups," with the name of the individual who is to take the action and the date it is to be taken. For example:

ACTION BY	WHEN	
W. P. Jones	9/26/46	A detailed report is to be submitted by Mr. Jones as to why there was a decline in the gross margin of Unit B for the last quarter.

The minutes are released on the day following each meeting to those who attended, and each has but to look in the margin for his name to learn what he must prepare for the next meeting. The staff are experts on "follow-ups" (or "punch-ups," as they are called), and no one has as yet succeeded in circumventing this procedure. Company X has found this device highly effective. Until the requisite action is taken or information is forthcoming, the item is carried forward meeting after meeting.

The minutes, as well as a general discussion of the charts, are broken down into the following categories:

Sales	Budgets
Engineering	Operating Figures
Manufacturing & Production	Research & Development
Personnel	General

In addition to these board or staff meetings with various plants, the staff meets weekly as a body to consider over-all plans for the company. At this meeting, personnel transfers among plants are considered, policy matters determined, acquisition of new products discussed, and further study devoted to matters previously taken up at operating meetings.

BRANCH PLANT AUDITS

Supplementing the various controls, the vice-president and treasurer assigns auditors from his staff to visit the plants or branches whenever such a procedure seems warranted. No visits are made without the approval of the respective plant managers, however. The auditors scrutinize the plant's books from varied angles. On one trip they may direct their attention to inventories—not only checking actual book figures but perhaps taking a test inventory in the plant or stockroom. On another visit receivables or depreciation may be the subject of the audit. (The vice-president and treasurer sets the depreciation rate for all plants.) A detailed report on the results of each audit is submitted to the vice-president and treasurer, and he takes up any suggestions or recommendations which seem pertinent with the branch manager.

These audits, made throughout the year, help the branch manager to keep his plant on an even keel and to acquire confidence in his organization.

The sooner he develops confidence, the faster will he be able to divest himself of many detailed duties and to assume additional responsibilities. The spot checks also prevent the company's being "oversold" in meetings by eloquent branch managers.

The staff also requires each of its members to visit a branch plant at least bi-monthly, thereby giving him an opportunity to observe the progress, or the lack of it, since the last trip.

REACTION OF PLANT MANAGERS

How do the plant managers react to these controls and the manner in which they are administered? Few viewed them favorably at first. Those managers who had had sales experience recognized the value of the charts, but many others had to be "sold" on their utility—and sales talk did not do it! Several instances where a staff member was able, by means of a chart, to put his finger on a serious condition which a plant manager had overlooked did the selling job for the staff.

Again, most managers resented being "followed up" like school boys. However, as the tempo of the meetings increased and it was possible to accomplish more at each session, the managers began to realize that the "punch-ups" could be credited with the "streamlining." Everyone is prepared with the answers beforehand, and meetings no longer drag along as in the past.

The activities of the auditing staff could naturally be a boomerang. Much depends on the personality of the auditors as well as on the manner in which the vice-president and treasurer discusses results with plant managers. Here affability and a cooperative approach rather than a fault-finding attitude are essential. Each plant manager at Company X has accepted audits in the spirit with which they were instituted—that of helpfulness.

The managers are undisputed bosses in their own bailiwicks, and this fact is impressed on them and on the staff. They are given rein to formulate their own views (unless contrary to company policy) and to run the business as they would their own. Most of them at times have found themselves out in water above their heads, but the good ones have always managed to reach shore. The fact that "the boss" has reposed such confidence in them serves as a spur, and they outdo themselves in order not to let him down.

STAFF ATTITUDE

How does the staff feel? It will be remembered that a staff member has no authority over the plant manager, despite the fact that he is on the directorate of the subsidiary and really outranks the manager since he is an officer of the parent company. Generally, the staff has found no fault with the various controls because each member helped devise them. However, if one delves more deeply into the matter, it is possible to discern some lack of enthusiasm over the methods of administering the controls.

The staff were formerly incumbents of line or operating jobs, elevated to their present positions by reason of ability and leadership qualities. Upon assuming their new assignments, they undergo a period of adjustment which proves difficult for some. From a hard-hitting, enthusiastic operating official the staff member must change to a tactful, analytical policy-maker. Compara-

tively little contact is had with the rank and file.

Some men make the transition readily; for some it is difficult and requires time; to still others it is temperamentally impossible. To attempt an anology, a staff position in an organization seems to call for a coach or a cheer leader—not a quarterback or tackle. But some individuals feel they must actually participate in the game; they are unhappy if restricted to the sidelines.

CONTROLS MUST BE IMPLEMENTED

Administrative control devices serve only as guides; they are never a substitute for discerning personal control and continuous observation by the top management of the organization. The president of the parent company must be constantly alert to the actions and reactions of his executives—plant managers and staff members. Such close observation will indicate what transfers or changes are necessary from time to time.

The president must be aware, too, of the possibility of dual authority. An aggressive staff member may give orders to a weak or mediocre plant manager and have them carried out to the letter. As a result, the plant manager may feel that he is reporting to two bosses. Dog fights can occur where such tactics are attempted on an equally aggressive plant manager who retaliates instead of succumbing so easily. The top administrative officer must be able to cope with these and similar situations.

CONCLUSION

The controls described in this paper have been in effect at Company X for approximately three years. Both the controls and their administration have naturally undergone many changes in this period. The system is still on trial, and controls are expanded or relaxed as experience dictates.

The organization structure of Company X is geared to expand or contract, to accelerate or decelerate as needed. Its flexibility is its lifeblood; its independence of action on the part of executives is its heartstring. Both qualities are essential in a progressive, expanding organization.

Has Management Gone Through the Mill?

THE plumber, the carpenter, or the toolmaker who started out as an apprentice knows how an apprentice works. He has gone through the mill. He understands what the job is about. Has management gone through the mill? Do the heads of American business, by and large, know what it's like coming up?

In this regard, a study of 50 of the largest businesses in America—based upon analysis of assets in the years immediately preceding the war—provides the following information: Of the 143 executives comprising the top management of these firms, one started work for $1.50 a week; 11, for less than $5 a week; 43, for less than $10. Eighty-one others received between $10 and $25 a week; only seven were paid more than $25 a week; the most highly-paid received $69.23 a week.

When you think of the head of a big business, think of a young man who once drew an envelope at the end of the week with $13.40 in it.

—N. W. Ayer & Son, Inc. (as quoted in *Trained Men* 9-10/46)

Survey of Books for Executives

WHO WERE THE PIONEERS OF SCIENTIFIC MANAGEMENT?

THE MAKING OF SCIENTIFIC MANAGEMENT: *Volume I—Thirteen Pioneers.* By L. Urwick and E. F. L. Brech. Management Publications Trust, Ltd., London, 1945. 195 pages. 7*s.* 6*d.*

*Reviewed by Harry Arthur Hopf**

During an early October evening in the year 1910, a small group of engineers met in the apartment of one of them, H. L. Gantt, in New York City. They had been called together by Louis D. Brandeis to choose the most suitable designation for the new philosophy of management which they were to expound and to defend at the forthcoming hearings on railroad freight rates before the Interstate Commerce Commission.

Mr. Brandeis, as one of the leading attorneys of the shippers opposing the proposed rate increases, sought to demonstrate through the testimony of some 10 engineers and industrialists that there was a means by which the railroads could raise wages and at the same time, instead of increasing costs, actually reduce them; hence, that there was no justification for approval of their application for higher freight rates.

It was clear to Mr. Brandeis that it would add greatly to the value of the testimony of his witnesses if they would always call the same things by the same names and, most important of all, would agree upon a single term to designate, as a whole, the system of management with whose practice they were identified. A number of titles were suggested, including "Taylor system," "functional management," "shop management," and "efficiency." Finally, the group decided unanimously to adopt the term "scientific management" for the purposes of the hearings.

Frederick W. Taylor, the leading proponent of the new philosophy, was not present at the October meeting; nor, indeed, did he testify at the later I.C.C. hearings. He, therefore, had nothing to do with the selection of the term "scientific management," though in one of his manuscripts, relating to a lecture at Harvard University in 1909, he had casually employed it as a substitute for "task management," a term first appearing in the text but later crossed out.

Through the medium of the I.C.C. hearings, scientific management as a concept was brought dramatically to the notice of the public. The story of its later development is known to the majority of those who have concerned themselves with the history of management. Frederick W. Taylor is justly acclaimed as the founder of a new school of thought, a new philosophy of management, which for all time to come will remain associated with his name. To speak of Taylor is to recall vividly his pioneering labors and accomplishments; to employ the term "scientific management" is to conjure up before the mind's eye the record of his unique and epoch-making contributions in a field fraught with the utmost significance to industrial and social progress.

And now come two British authors, Lt.-Col. L. Urwick and Mr. E. F. L. Brech, with a broadly conceived and scholarly work in two volumes (with the promise of a third at some future time) devoted to "The Making of Scientific Management." Volume I comprises the story of the activities of 13 "pioneers" in scientific management. Volume II concerns itself with an interpretation of the evolution of management in British industry. Volume III, in prospect, will "outline some of the most recent developments in management in the U. S. A., particularly those associated with the experiments at the Hawthorne Plant of the Western Electric Company conducted in collaboration with a team of scientists from Harvard under the direction of Elton Mayo. . . ."

Col. Urwick, who is well known to students and practitioners of management in this country, is, in his own, easily in the front rank of writers on management. He has upwards of a dozen volumes to his credit, some written in collaboration with others. Mr. Brech is among the younger men currently making names for themselves in management in Great Britain; he is the author of two books and the co-author of a third, all reflecting his interest and progress in that field. The material which they now publish in book form, as well as that to be put within the covers of a third volume, has been appearing for the past six years, with occasional intermissions, in the form of regular monthly articles in *Industry Illustrated,* British management journal. From refer-

* President, Hopf Institute of Management, Inc., Ossining, N. Y.

ences appearing here and there in this journal, one may conclude that the burden of doing the necessary research work rested to a large extent upon Mr. Brech, and that Col. Urwick made himself responsible for the preparation of the definitive text; indeed, the articles constituting the first series of "pioneers" are credited to him in the journal as sole author. In any case, the charm and lucidity of expression which one has long come to associate with Col. Urwick's writings are stamped upon the pages of both volumes.

Any just appraisal of the quality of *The Making of Scientific Management* necessitates visualization of the point of departure which the authors have chosen to employ in the preparation and presentation of their material. The title of the work clearly indicates that scientific management is the field to be treated; one is, therefore, led easily to the conclusion that, in conformity with long established practice in this and certain other countries of the world, the type of management with which Taylor's name is identified is intended to furnish the background for the presentation of the sketches of pioneers that appear in the first volume.

But such a conclusion would be untenable, for the authors make it plain in the first chapter, bearing the caption "Scientific Management and Society," that they entertain views which are at variance with it. Leaning heavily on the results of their historic researches, they conclude that:

> Scientific Management is not a new "system," something "invented" by a man called F. W. Taylor, a passing novelty. It is something much deeper, an attitude towards the control of human systems of co-operation of all kinds rendered essential by the immense accretion of power over material things ushered in by the industrial revolution. . . .
>
> What Taylor did was not to invent something quite new, but to synthesise and present as a reasonably coherent whole ideas which had been germinating and gathering force in Great Britain and the United States throughout the nineteenth century. He gave to a disconnected series of initiatives and experiments a philosophy and a title; complete unity was not within his scope. . . . It was left to others to extend his philosophy to other functions and especially to Henri Fayol, a Frenchman, to develop logical principles for the administration of a large-scale undertaking as a whole.
>
> It detracts nothing from Taylor's greatness to see him thus as a man who focussed the thought of a preceding age, carried that thought forward with a group of friends and colleagues whose united contribution was so outstanding as to constitute a "golden age" of management in the United States, and laid the intellectual foundations on which all subsequent work in Great Britain and many other countries has been based. But it is impossible to understand Taylor's achievement or the significance of Scientific Management for our society, unless his individual work is seen against the background of this larger whole of which it is only a part. (pp. 16-17.)

This thesis strikes the reviewer as highly interesting, very ingenious, but hardly convincing. Whatever impression it may have made upon British circles of readers—and there is evidence in the form of a critique by Dr. J. R. Bowie, to whose authoritative knowledge and trenchant pen the reviewer gladly pays warm tribute, that the thesis was allowed to remain unchallenged—it must appear to most American students of management as an unwarranted, not to say tortured, pattern of cause and effect. One is impelled to suggest that it may even be construed as running counter to that famous philosophic dictum known as Occam's Razor, which was expressed by William of Occam, scholar and ecclesiastic of the fourteenth century, in these terms: *Essentia non sunt multiplicanda praeter necessitatem!* (Essential things should not be multiplied beyond necessity.)

Let us not belabor the point, but proceed to a test of the soundness of the thesis in terms of the evidence in support of it furnished by the authors. As the title of the first volume suggests, it is devoted to a recital of the stories of thirteen so-called "pioneers." It will prove illuminating to list their names and countries of origin:

United States	*Great Britain*
Henry S. Dennison	Charles Babbage
Henry L. Gantt	Edward T. Elbourne
Frank B. Gilbreth	B. Seebohm Rowntree
Lillian M. Gilbreth	
Mary P. Follett	*France*
Frederick W. Taylor	Henry Le Chatelier
	Henri Fayol
Germany	Charles de Fréminville
Walther Rathenau	

Before commenting upon this list, it is incumbent upon the reviewer to quote two paragraphs appearing toward the end of the first chapter, in which the authors record in moving language what is in effect an *apologia* for the selections made:

> An attempt will also be made to fill in some of the gaps in the first volume. The thirteen men and women herein described are by no means all and not necessarily the most distinguished of those who have contributed to the movement. It seems to have a special attraction for two types of mind—the employer or technician who finds in the direction of industrial work a responsibility to his fellows which outweighs in interest the commercial or technical aspect of his task, and the scientist specialising in some particular field, who is not satisfied to remain purely a specialist, but feels that the intellectual methods and the integrity of the genuine research worker have a wider contribution to make in the crisis which faces our civilisation.
>
> Such men and women are not confined to any one country or to any one period. They are in the great tradition of humanism. Their work is as typical of the social heritage of the twentieth century as the work of Michael Angelo and Leonardo da Vinci was typical of the Renaissance. That heritage can neither be understood nor preserved, unless it is seen as the unified gift of many minds bearing on every aspect of life which has engaged man's long search for goodness, beauty and truth. (p. 18.)

Let us now consider the individuals se-

lected. With respect to the six credited to the United States, there can be no question of the justice of applying the term "pioneer" to four of them: Henry L. Gantt, Frank B. Gilbreth, Lillian M. Gilbreth, and Frederick W. Taylor. To expatiate upon their accomplishments here would constitute a work of supererogation.

With respect to Henry S. Dennison, the intellectual contributions of this brilliant and far-seeing industrialist to the cause of scientific management have been many and varied, but they were made in the capacity of a disciple and interpreter rather than as a pioneer. Dennison, as the authors correctly state, "has, in the period between two world wars, had something to do with almost every movement of thought in the field of business management, whether in the United States or internationally, which was worth considering." In all his varied activities and aspirations, he has exemplified in marked degree the ability to heed Matthew Arnold's injunction to "see life steadily and see it whole." His little volume, *Organization Engineering*, published in 1931, is one of the clearest and most fundamental expositions of the subject of which our American literature may boast. Since Col. Urwick seems to have written with special relish and unquestionably on the strength of intimate knowledge concerning Dennison, with whom he was associated for some years in the International Management Institute in Geneva, this sketch is easily one of the most felicitous of the thirteen.

In the case of Mary P. Follett, distinguished political scientist, philosopher and student of business administration, the reviewer is forced to register a vigorous dissent from the soundness of judgment of the authors in designating her as a pioneer in scientific management. It is the reviewer's opinion that Col. Urwick's enthusiastic endorsement of the quality and significance of Mary Follett's writings, which led him and the late Henry C. Metcalf to edit and to publish, in 1941, a volume of her collected papers, has prompted him to assign to this gifted woman a position in scientific management which simply cannot be supported by any objective appraisal.

Throughout the text of both volumes under review, many references to Mary Follett occur. In the concluding paragraph of the sketch devoted to her, it is stated that "she had brought to light a completely new philosophy of organization" and that "she went much further than either Taylor or Fayol . . . for she was putting industry in its correct setting, as one part, and only one part, of the organized life of the community." This is an exceedingly high appraisal, and one wonders how Col. Urwick finds himself able to justify it in the light of what such writers as Adamiecki, Bogdanow, Lippert, Robb, Sheldon, and Schmoller—to mention only a half-dozen names that come readily to mind—have contributed to the development of a philosophy of organization.

What is bound to strike any person conversant with the history of scientific management as passing strange, is the extent to which the authors are guilty of omissions from the list of American pioneers. The seriousness of these omissions is such as to defy defense in terms of the quoted assurance that "an attempt will also be made to fill in some of the gaps in the first volume." At the risk of fanning into flame the fires of ancient controversies which have been allowed to subside with the passage of time, and with full recognition of the likelihood that no list prepared by one individual would ever win universal acceptance, the reviewer nevertheless suggests that the following names will find many supporters for inclusion in a representative list of American pioneers in scientific management:

Carl G. Barth	Henry P. Kendall
Wallace Clark	William H. Leffingwell
Morris L. Cooke	Harlow S. Person
James M. Dodge	Sanford E. Thompson
Harrington Emerson	Henry R. Towne
Keppele Hall	Robert G. Valentine
H. King Hathaway	John H. Williams

Several of the men named, notably Harrington Emerson, were so intimately associated with the inception of the scientific management movement that any objective appraisal would classify them as enshrined permanently in its hall of fame.

The British contingent chosen by the authors consists of three persons. It is fortunate for the case they wish to present that the first "pioneer" in point of time, Charles Babbage, perpetuated himself by writing his famous work, *On the Economy of Machinery and Manufactures*, published in 1832. In this book the author revealed rather clearly that he was not uninfluenced by the thought of Adam Smith who, over a half-century earlier (1776) had made himself immortal by writing that classic of classics, *The Wealth of Nations*. It would seem that it might have been more to the purpose had the authors chosen to feature Smith rather than Babbage as a pioneer; for the former became the father of modern economics, which enters into the very warp and woof of management, whereas the latter's contribution remained practically an isolated one throughout the major part of the nineteenth century as far as stimulating further exploration of the field of scientific management is concerned.

Babbage was a scientist interested in mathematics. As the authors point out, he is best known to posterity for pioneer work in the development of the "Calculating En-

gine." He was encouraged to write his book through industrial studies that he had opportunity to pursue in Great Britain and other countries. The work had a large and rapid sale, despite the fact that Babbage aroused the opposition of book sellers by calling attention in one of his chapters to the excessive rate of profit made by them, which was "so injurious to the interests of both public and authors." The case for Babbage as a pioneer in scientific management is summed up by the authors in the following terms:

> It is this detachment, this use of comparison, his faith in the possibility of applying scientific processes of thought to the organisation of industry, which constitute Babbage's unique contribution to the advancement of management. More than half a century before Taylor was to illuminate the same point, with far greater effect because he was a practising engineer, Babbage had stumbled on the underlying truth that there are general principles applicable to the manufacture of products by machinery, and that it is an understanding of these principles rather than the technical knowledge of how to make a particular article which is of the first importance.

The reference to Taylor makes it appropriate to state that he had never heard of Babbage up to the time that he brought his epoch-making researches to fruition; nor is there any evidence available to suggest that Taylor was acquainted with *The Philosophy of Manufactures,* by Andrew Ure, published in London just three years after Babbage's book appeared, and constituting, as its author states in a subtitle, "an exposition of the scientific, moral and commercial economy of the factory system of Great Britain." It would be interesting to know how Col. Urwick and Mr. Brech would react to the suggestion that Dr. Ure's work should not be altogether ignored in a classification of British pioneers.

The case of the second British "pioneer," Edward Tregaskiss Elbourne, represents a curious anomaly in the connection here considered. Introduced by the authors in the following words: "An apostle would be a more appropriate description than a pioneer, for Elbourne's mission was to preach a cause rather than to develop or further the evolution of a new science," he is practically unknown in this country and apparently never met Taylor, "nor does his thought show any trace of having been influenced by the Taylor doctrines."

Elbourne's most important publication, *Factory Administration and Accounts,* appeared in 1914; it has won wide acceptance as a practical treatise on administrative problems. He had an abiding interest in education for management, which he expressed in practice by identifying himself with formal educational processes and working purposefully for the establishment of what is now the Institute of Industrial Administration, the leading body of its kind in Great Britain. He did much to advance the cause of management in that country, and it is perhaps this fact that has led the authors to pay a tribute to him in their work.

B. Seebohm Rowntree, the third and last of the British "pioneers" featured by the authors, is, in the opinion of the reviewer, in the same category as Henry S. Dennison, his life-long friend. Rowntree's contributions in the field of management cannot be characterized as in the nature of the development of a new science, but must be viewed rather as representing the ardent and long sustained efforts of an outstanding industrial leader who has spent a lifetime in devoting himself to advancement of the human factor in industry, and is preeminently a catylist and liberal thinker, with strong tendencies to crusade for the things he believes in.

Rowntree is widely known and respected for his deep interest in all measures designed to improve the condition of workers, long association with a number of agencies dedicated to the promotion of education for management, consistent exemplification of faith in the efficacy of principles of democracy, and comprehensive grasp of the objectives to whose achievement business administration under present-day conditions should dedicate itself. Col. Urwick's appraisal of his former employer is an informed and sympathetic portrait of a really remarkable man.

What may be said about the three representatives of France included in the list presented by the authors? Henry Le Chatelier, a great French scientist whose long continued and distinguished labors in his chosen field of chemistry were crowned with world-wide honors, did much to make his countrymen acquainted with Taylor's work and accomplishments. He translated *Principles of Scientific Management* into his own language and strove vigorously to secure converts to the new doctrines. His influence upon the spread of scientific management to other European countries was material; he helped to organize the French Conference on Scientific Management in 1920; one remembers him as a striking figure at the head of the French delegation to the First International Management Congress in Prague, in 1924. However, despite his ardent advocacy of the principles of scientific management, Le Chatelier made no original contribution to the field covered by them; he cannot, therefore, be correctly classified as a pioneer.

With respect to Henri Fayol, the case is quite different. But here, too, it is the reviewer's conviction that it is unjustifiable to characterize this great proponent of principles of administration as a pioneer in scientific management. Fayol's fame rests upon the fact that in 1915 he published *Adminis-*

tration Industrielle et Générale, a treatise expounding the theories and principles he had formulated after a lifetime of association, ultimately in the position of General Manager, with a famous French organization, the *Société anonyme de Commentry-Fourchambault et Decazeville.*

Fayol's masterly analysis of the function of administration, which earned for him the appellation, Fondateur de la Doctrine Administrative, owed nothing to Taylor, for, as the authors recognize, Fayol worked from the top of the industrial hierarchy downwards, whereas Taylor applied his scientific mind to its lowest level, the single worker at his lathe. For a long time the two schools of thought were to such an extent opposed to each other in the public mind, that their respective adherents could find little common ground.

In Germany, which had embraced Fayol's principles with greater eagerness and sympathy than it had shown toward those of Taylor, the concepts of "Fayolismus" and "Taylorismus" were sharply contrasted and a collection of works of some magnitude was published as one of the manifestations of gathering public interest. Irene. Witte, gifted former pupil of the Gilbreths, who through her writings has done much to interpret scientific management to her countrymen, reported in the introduction to her book, *F. W. Taylor, Der Vater Wirtschaftlicher Betriebsführung* (1928): "Heute sind Namen und System in den Augen vieler ein überwundener Standpunkt." (Today the name and the system [Taylor and the Taylor system] are in the eyes of many a superseded viewpoint.)

It was left to a later time, the occasion of the Second International Management Congress, held at Brussels in 1925, to bring about a reconciliation of ideas and beliefs concerning the two schools. Credit for this accomplishment is due in large measure to the generous and enlightened attitude of the three principal speakers on the program, Le Chatelier, Fayol, and de Fréminville. Notwithstanding the fact that the authors define the approaches made by Taylor and Fayol as complementary, the reviewer leans to the view that, as developed by the two men, they were essentially so different as to require that each be granted separate recognition. We are still too close to the evolving aspects of management and administration to render an accurate appraisal of the proper relationship of the two systems and of their respective influence over the areas in which they express themselves. It must, therefore, be left to the future to assign to each the position in the general scheme of things which it is destined permanently to occupy.

Charles de Fréminville, the third of the French representatives cited by the authors, is described by them as the co-equal of Le Chatelier as a pioneer in scientific management. De Fréminville, whose professional interest in electrical transportation led him to make visits to the United States, met Taylor in 1912, at a time when he had already become acquainted with the latter's philosophy and attainments. This personal contact stimulated him to strive for the introduction of scientific management into France; he did much writing and lecturing on the subject and, during World War I, had opportunity to apply his knowledge to military and naval factories and yards in which he served.

De Fréminville's chief efforts in promoting the advancement of scientific management came, however, after the war, when he was already over 60 years of age. Until his death in 1936, just a few months before that of his friend and intimate collaborator, Le Chatelier, he strove ardently and with sound purpose to aid in the organization of the management movement in France and in the international field. It was he who was chiefly instrumental in causing the union of the two schools of thought previously referred to, amalgamating their followers in 1924 as the Comité National de l'Organisation Française. Of this new body de Fréminville was president from its inception until 1932; he also served as president of the Fourth International Management Congress held in Paris in 1929, and was for some years a member of the governing body of the International Management Institute at Geneva, a capacity in which he was brought into regular contact with the Managing Director, L. Urwick.

De Fréminville may hardly be characterized as a pioneer in scientific management. However prominent he was as a disciple of the new philosophy, and despite the fact that in his own country he attained a position of leadership in its advocacy, these achievements cannot be construed as conferring upon him a distinction which should logically be reserved to those who made original contributions to the advancement of a new science. This opinion is offered in wholehearted appreciation of the services which de Fréminville rendered over a long period of time to a cause that was very dear to him and to which he devoted such unselfish service.

One cannot pass from consideration of the French interest in scientific management without stressing, to an extent limited only by the framework within which this review should be kept, the contributions made by many French scientists to the upbuilding of management as a science. De Fréminville, as the authors state, had accented from the outset of his public work in the cause of management the existence of a direct line

of succession from Descartes to Taylor. It was the famous philosopher and physicist Descartes who in the seventeenth century had guided the evolution of scientific thought and whose philosophy helped later scientists capitalize their efforts to rationalize industry.

According to an unpublished report in the reviewer's possession, made by Mlle. Thérése LeRoy and Claude Bourdet, the following initiatives are significant episodes in the evolution of scientific management in France:

1. A minister of Louis XIV, Colbert, was the initiator. At his call, in the second half of the 17th century, physicists and engineers made the first experimental researches on human work. A short time after its creation, the French Academy of Science invited "all scientists to study the work done by the workmen in their workshops."
2. De la Hire (1640-1718) showed the relation existing between the physical strength of the worker and his weight, and concluded that sloping boards were the rational way to elevate heavy loads.
3. Amontons (1663-1705) worked on the "specific speed of men and horses" and collected data on the daily amount of work.
4. Vauban, Marshal of France (1633-1707), for the first time in history let the times be taken which were required by soldiers for the carrying of loads of earth in building fortifications. In one of his books Vauban wrote: "I am certain that nobody who has even a small use of management will deny that four men properly supervised will do more work than six others left to themselves."
5. Belidor (1693-1761), a military engineer, who analyzed the works of Vauban in a book published in 1729, called *The Science of Engineering in Fortifications and Civil Architecture*, stated that 10 hours' work of a man stimulated by his interest are worth at least 15 of another who works on an hourly salary basis.
6. In another book, *Hydraulic Architecture* (Paris, 1750), the same author gave an example of time analysis quite similar to modern methods. He also studied the problems of the rational workday, of the utility of rest periods, and of the utility of separating planning from performance.
7. Perronet (1708-1794), founder of the school of building engineering, applied scientific management methods based upon an exact study of elementary operations. In 1738, when serving as a young engineer in Alençon, he analyzed the work done at the pin factory of Laigle, in Normandy. His studies were summarized in two reports which he presented to the Academy of Science in 1739 and 1740. These reports were used by Adam Smith to formulate his fundamental principles of economy.
8. Coulomb (1736-1806), an army engineer, at the end of the eighteenth century studied the work done by workers chosen from among those who did the hardest kind of work. He showed in his *Memorandum on Human Strength*, published in 1798, that the useless movements of a workman are one of the principal causes of fatigue, that proper instruction should eliminate these movements, that heavy work should be divided into short intervals of activity and rest. He enumerated for the first time all the physiological factors of a man's work.
9. Dupin, a professor of mechanics, noted on January 25th, 1829, in an opening lecture, that "whereas a huge effort toward perfecting machinery had been made, very little had been done toward perfecting the workman." With another physicist, Poncelet, he started a campaign for rational methods and work analysis in industry, believing it to be the only way to protect workmen against overwork. He was obtaining a certain success when political events in 1830 stopped the movement.
10. In the middle of the 19th century, an important step was taken toward scientific methods of work analysis by Marey, who created a graphic method by which all kinds of phenomena could be inscribed on a smoked paper cylinder. It was his idea that this invention could be used for professional work analysis. In 1894, Fremont used Marey's methods for the analysis of anvil work, nailing, and filing.

(This review will be concluded in the February issue, which will also feature a review by Dr. Hopf of *Management in British Industry*, Volume II of this work.—EDITOR.)